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The study addresses the problems of: (1) how vocational-technical students arrive at their curricular and vocational choices, (2) how the vocational-technical experience that is offered in a vocational-technical school influences various aspects of the students vocational development, and (3) the curricular implications of these findings. A series of exploratory studies, using student interviews, questionnaires, and Crites' Vocational Development Inventory (1965) which was administered to a total of 1,285 eighth grade boys and girls and 1,294 ninth grade boys and girls, indicated that the vocational readiness of vocational-technical students was questionable. The study then conducted a series of investigations with high school freshmen, sophomores, juniors and seniors and focused on choice-related attitudinal changes, work values, changes in vocational preference, achievement, and the relative effectiveness of the General Aptitude Test Battery at the ninth grade level. Proposed curricular revisions recommended broad exploratory opportunities in junior high school, narrowed exploration in the first year cluster program and specialized preparation during remaining high school and post-high school years. (CH)

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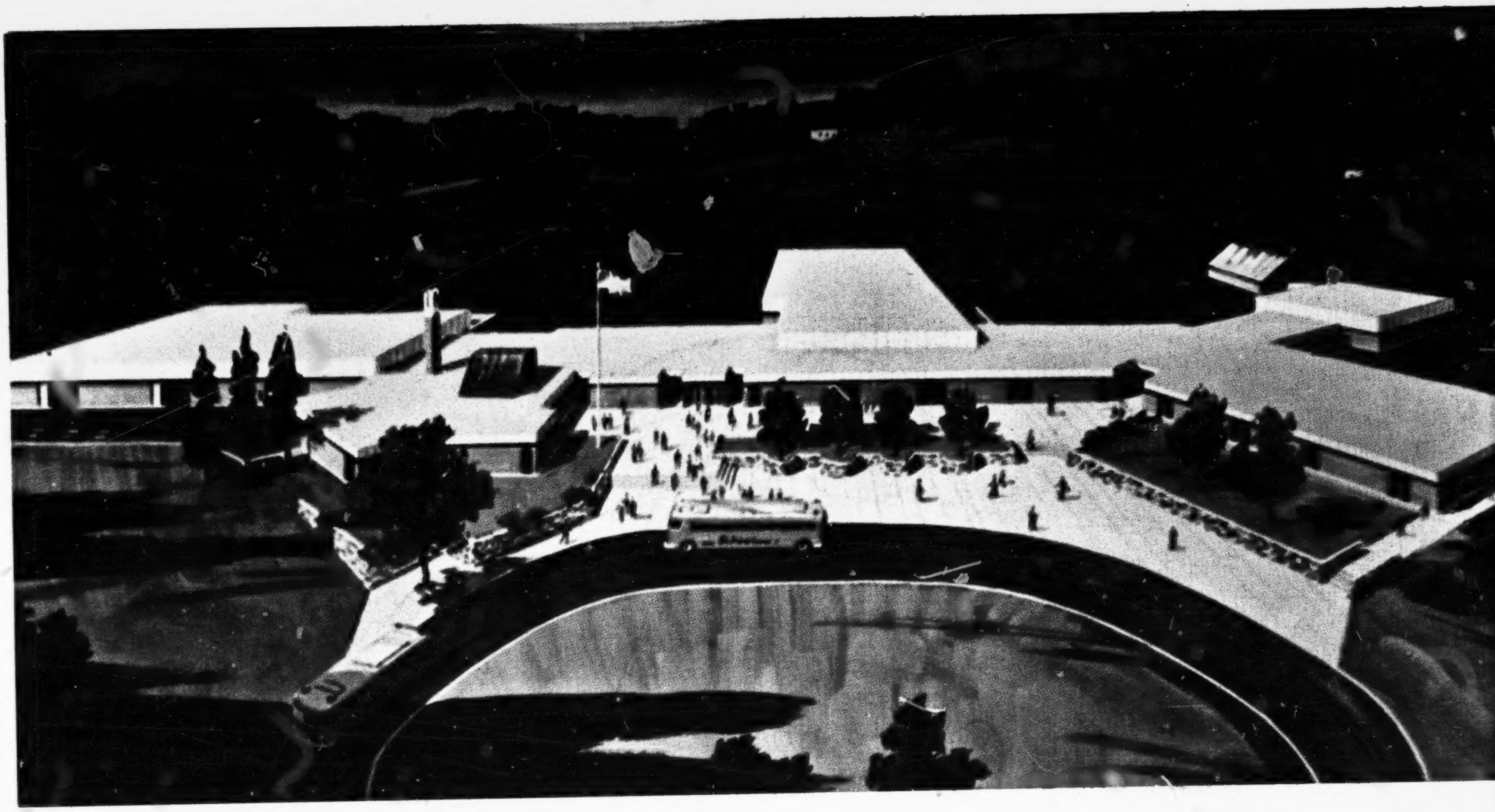
THE IMPLICATIONS OF VOCATIONAL DEVELOPMENT ON HIGH SCHOOL LEVEL VOCATIONAL-TECHNICAL EDUCATION



VOCATIONAL-TECHNICAL SCHOOL EASTERN NORTHAMPTON COUNTY

Easton, Pennsylvania

Participating School Districts:

Bangor
Easton
Nazareth
Pen Argyl
Wilson

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FINAL REPORT

THE IMPLICATIONS OF VOCATIONAL DEVELOPMENT ON HIGH SCHOOL LEVEL VOCATIONAL-TECHNICAL EDUCATION

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Easton, Pennsylvania

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PENNSYLVANIA DEPARTMENT OF PUBLIC INSTRUCTION

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ABSTRACT

The Problem

Vocational-technical education when offered at the senior high school level normally requires students who are interested in vocational and technical programs to select one specific program while still enrolled in grade nine. Such programs assume that students will remain in their chosen program for three years and upon graduation or after completing related post-high school education, they will enter the field of work selected in grade nine. Since most empirical studies and theoretical formulations which have dealt with the vocational choices of ninth grade boys suggest that these choices are quite unstable and are seldom based on meaningful information or experiences, there is a need to determine empirically, (1) how vocational-technical students do arrive at their curricular and vocational choices, (2) how the vocational-technical experiences offered in a vocational-technical school influence various aspects of the students' vocational development, and (3) the curricular implications of these findings.

Scope of the Study

The basic underlying objective of this study was to provide descriptive information which could be used in the development of a

vocational-technical curriculum geared to the needs of the students served. Since the topic encompasses many areas, it was decided on the basis of preliminary studies to focus on the curricular implications of the vocational development of adolescent boys who select vocational-technical programs. Past studies of vocational-technical education have for the most part ignored this vital consideration.

Objectives

The primary working objectives pursued in this study were:

(1) Determine how ninth grade boys select specific vocational-technical programs.

(2) Determine whether the use of the General Aptitude Test Battery (GATB) will be of "significant value" in assisting ninth grade boys to select a vocational-technical program.

(3) Determine whether student performance in vocational-technical education is significantly related to ninth grade indices of vocational maturity.

(4) Determine how the vocational-technical curriculum and related curricular areas can be modified in light of the findings of the three studies described above.

(5) Investigate the cluster concept as a potential vehicle for implementing the recommendations resulting from this study.

Methods Used

A number of research techniques were utilized in order to pursue the above objectives:

(1) A number of descriptive studies were conducted in search of information concerning the vocational readiness of ninth grade boys.

(2) An experimental study using a 2 x 3 factorial design and the analysis of variance was used to study the effects of using the GATB in counseling ninth grade boys.

(3) Descriptive cross-sectional studies were used to investigate the changes in vocationally-related attitudes and plans of high school level vocational-technical students.

(4) A detailed study of related research was made in order to provide additional insights into the vocational development of ninth grade boys.

Findings and Their Significance

Among the most significant findings of the study were the following:

(1) Eighth and ninth grade boys who indicate an interest in high school level vocational-technical education score significantly lower on Crites' Vocational Development Inventory (VDI) than students who plan to enroll in the college preparatory program. There is a

significant correlation between vocational maturity, as measured by the VDI and intelligence, which helps to explain the observed difference in vocational maturity.

(2) Ninth grade students counseled with the GATB make choice-related decisions in much the same way as students who were counseled with the Differential Aptitude Test. Most observed differences were not significant.

(3) Student decisions related to curricular choices at the ninth grade level are based on limited information. Most students rely on changing interests to make their choice. For the most part students tend to ignore aptitude information.

(4) There is little correlation between the stated interests and the measured interests of ninth grade boys.

(5) The work values stated by vocational-technical students differ from those of college preparatory students, but are quite appropriate for the vocational areas selected by the students.

(6) Approximately one-third of all high school vocational-technical students indicate that they would prefer to be in a different vocational-technical program than the one in which they enrolled.

(7) Junior high school vocational guidance and industrial arts programs are not providing the information and experiences which students should have in order to select vocational-technical programs and make meaningful pre-vocational decisions.

Recommendations

1. A comprehensive and systematic program of vocational guidance should be made an integral part of the junior high school curriculum.

2. New approaches to junior high school industrial arts should be studied in an attempt to provide a wider range of exploratory opportunities which in turn will assist students to better know their own abilities and the opportunities available in the world of work.

3. Develop a senior high school vocational-technical curriculum which will enable first year students to investigate a family or cluster of occupational skills. The second and third year programs should provide the specialized skills which will facilitate job entry or more advanced post-high school training. The senior high school program should be non-graded in that students will be able to progress at their own speed and reach a level of proficiency commensurate with their own unique abilities.

In summary, the proposed curricular revisions would provide broad exploratory opportunities in the junior high school years, narrowed exploration during the first-year cluster program and specialized preparation during the remaining high school and post-high school years.

PREFACE

The primary impetus for the study described in this report developed from a growing awareness of the part of the staff and administration of the Area Vocational-Technical School of Eastern Northampton County that the existing programs provided by the school were not adequately meeting the needs of all students. Although no formal studies were conducted to substantiate the above observation, there were a number of indicators such as requests to change programs, limited interest on the part of some students, poor attendance records, and dropouts.

Given this situation, there were two basic courses which could be followed; one, a course of relative inaction based on the assumption that the observed problems are to be expected and any curricular changes would not significantly alter the situation; second, a course of action, based on the assumption that underlying causes could be identified and meaningful program changes could be effected which would help to alleviate these and other related problems. This study is the result of accepting the challenges implied by the second course.

At no time was the study intended to be a thorough evaluation of the existing program, although several phases of the study did have evaluative overtones. The use of post-high school follow-up studies was not deemed feasible in light of the large percentage of recent graduates who were serving in the armed forces. The values derived from long range follow-up studies such as those conducted by Super and Project TALENT would provide additional insights not discernible in the study described herein.

The scope of the overall problem, the need to develop vocational-technical programs geared to the needs of the students, is such that it was necessary to be selective and focus the primary attention of the study on a limited number of interrelated factors. Very early in the preliminary phase of the study, it became quite clear that one very critical factor, the vocational readiness of the students, had received at best only superficial consideration in the past. As the real importance of this factor became apparent, it was decided that it would serve as the primary focus for our analysis of the present vocational-technical program.

While other relevant factors, such as the changing nature of technology and the needs of industry have been considered in this study as they must, they have not received the in-depth consideration which was given to the implications of vocational readiness. Despite this limitation, it is our hope that the analysis and recommendations growing out of the study will result in a vocational-technical curriculum built on a more solid foundation than now exists.

Although somewhat critical in nature, this study should not be considered as a condemnation of the existing curriculum. The present vocational-technical programs and related curricular offerings have aided many students over the years, and if left unchanged would continue to provide beneficial experiences for many more students. The recommendations contained in this report are an attempt to increase the existing benefits, so that a larger segment of the school population will be better served than ever before.

I. THE PROBLEM

Vocational-technical education, when offered at the senior high school level, normally requires students who are interested in vocational and technical courses to select one specific program while still enrolled in grade nine. Such programs rest on the basic assumption that ninth grade boys are "ready" to select one specific course from a variety of courses offered. Readiness in this case, implies an adequate knowledge of the world of work, knowledge of vocational-technical school offerings and adequate self-understanding. Furthermore, it is assumed that the students will remain in their chosen program for three years and upon graduation from high school or after completion of related post-high school education, they will enter an occupation closely related to the vocational-technical program selected in grade nine. The "readiness" of ninth grade boys to make specific vocational choices as well as the stability of their choices have been challenged in recent years by a number of empirical studies and theoretical formulations which will be described later.

If, in fact, ninth grade boys are not "ready" to make the pre-vocational decisions required of them, then it can be expected that various indices of vocational development will reflect the student's lack of readiness. In addition, it should be expected that vocational-technical students in grades ten, eleven, and twelve will demonstrate by their vocationally related attitudes, values, and decisions, the consequences of their ninth grade pre-vocational decisions as well as the impact of their experiences in the various vocational-technical programs. If it can be shown that ninth grade boys are not prepared to select specific vocational-technical programs, then appropriate curricular changes should be made in an attempt to maximize the benefits of high school level vocational-technical education.

II. OBJECTIVES

Although the underlying general objective of the study, the need to develop a vocational-technical curriculum geared to the needs of the students, served to give broad direction to this study, the objectives outlined below reflect the actual working objectives pursued throughout the study. Related to each of these objectives were a number of other questions which will be explained in greater detail later in the report.

One important objective of the study was to determine how ninth grade boys come to select specific vocational-technical programs. It was felt that an analysis of this important area would reveal pertinent information concerning both the readiness level of the students as well as the role played by the schools. Specifically, the study sought to challenge the contention of those who claim that ninth grade boys are not ready to make meaningful specific pre-vocational and vocational decisions, and also to determine how much of an impact the junior high school guidance and industrial arts programs have on the curricular decisions made by ninth grade boys who select vocational-technical programs.

For the most part, the study sought evidence of the student's readiness level within the context of developmental theories as proposed by Ginzberg (1951) and Super (1957).

A second objective of the study was to determine what values could be gained by using the General Aptitude Test Battery (GATB) as a basis for guiding ninth grade boys in their selection of specific vocational-technical programs. This aspect of the total study was included since a number of agencies including the Pennsylvania Department of Public Instruction have implied that the use of the GATB at the ninth grade level could be of "significant value" to students who plan to pursue high school level vocational-technical programs. Dr. John Rackley, then Superintendent of Public Instruction, in a December 9, 1966 newsletter to all district and county superintendents announced the release of the GATB to the Department. According to Dr. Rackley (1966), "the GATB could be used in grades nine through twelve to substantiate student ability, provide information related to student placement in appropriate curricula, as well as for use in developing units of occupational information, and to create an awareness of the need for developing occupational skills required for entering into this world of work. The results of the battery, when used in combination with other information currently available to counselors, can be of significant value to students as they consider a variety of educational and occupational choices."

Although it is obvious that the use of the GATB or any other test cannot provide THE solution to the problem being studied, it is felt that if it can be shown that the test does provide "significant values", it will help to lessen the problem now confronting high school level vocational-technical education and the students it serves.

A third objective of the study was to determine whether various indices of vocational development at the ninth grade level are related to student performance in first-year vocational-technical programs. If it can be shown that a significant correlation does exist between the ninth grade predictor variables and tenth grade measures of achievement and attitude, then it will be possible to identify those students who will have difficulty and hopefully provide services which will help to remedy the potential problem. This phase of the study was not designed with the goal of providing justification for the elimination of certain students from vocational-technical education, but rather to provide insights which will enable the schools to restructure their programs to meet the needs of all students.

A fourth objective of the study was to determine what changes take place in a student's vocationally related behavior, attitudes, values and decisions during the three years in which the student is enrolled in vocational-technical programs. This phase of the total study was included because many of the less obvious outcomes of vocational-technical education which are related to the student's vocational development reveal a great deal about the growth experienced by the student during his three years in the program.

A fifth objective of the study was to investigate ways in which all of the findings could be incorporated into the curriculum. At the junior high school level, the primary objective was to determine ways in which the findings could be implemented in the guidance and industrial arts programs. At the senior high school level, the study sought to investigate ways in which the vocational-technical curriculum itself could be revised in light of the study's findings. More specifically, the study sought to determine the feasibility of utilizing the cluster concept as the vehicle for revising the vocational-technical program at the high school level. As a result of preliminary studies conducted during the preceding year, it was decided that the cluster approach offered the greatest potential for alleviating the problem under study, as well as to meeting other needs not now met by our current program.

III. APPROACHING THE PROBLEM: METHODS USED

The objectives pursued during this study were an outgrowth of observations and recommendations made by the staff and administration of the Area Vocational-Technical School of Eastern Northampton County during the 1965-66 school year. Initially it was proposed that a feasibility study be made in order to determine whether a non-graded approach could be utilized in a high school level vocational-technical program. This proposal was made because there was a strong feeling that the existing program failed to fully provide for the individual differences which existed in the student body.

Although this initial objective and rationale were not dropped, it was recognized early in the preliminary study conducted during the 1966-67 school year that a curriculum development program of this nature, in addition to being concerned with individual differences, must be equally concerned with the underlying developmental characteristics and needs of the population being studied. A search of the literature revealed a number of studies related to the developmental characteristics and needs of adolescent boys in general, but only a limited number of studies directly concerned with the unique characteristics and needs of boys who select vocational-technical programs. In most developmental areas, there was no reason to believe that the characteristics and needs of boys who select vocational-technical programs were significantly different from the general population of adolescent boys. In one area however, there was sufficient evidence to indicate that the two populations might differ significantly.

A number of studies, to be described under related research, indicated that the less academically talented students, many of whom select vocational programs, are less ready to make meaningful and realistic pre-vocational and vocational choices than the more academically capable boys. Thus it seemed reasonable to assume that the choice-related problems of boys selecting vocational-technical programs might be more acute than the problems of the general ninth grade population.

Following this analysis of developmental literature, the study began to look more closely for both indications and consequences of vocational "immaturity" on the part of our senior high school vocational-technical students and the ninth grade boys who indicated an interest in pursuing vocational-technical programs. A series of exploratory studies using student interviews, questionnaires, and Crites' (1965) Vocational Development Inventory (VDI) provided information which led to the conclusion that there was justification to question the vocational readiness of vocational-technical students.

The preliminary phases of the study provided a focus for the curriculum development project which was lacking in the initial approach to the problem. Despite this new focus, there was still a need to develop a research oriented approach to the problem which would be feasible in light of both staff and time limitations. The more serious of the two limitations was the limitation of time. Several phases of the study, because of their developmental nature, called for longitudinal studies of from three to six years duration. The use of longitudinal studies would have made it possible to better understand the evolving patterns of vocational development which in turn might provide leads not found by use of cross-sectional studies. The desire to develop and implement an improved curriculum as soon as possible limited the use of longitudinal approaches and resulted in the adoption of cross-sectional procedures in most of the studies.

As a result of the preliminary study, it was decided that the main objective, the development of a vocational-technical curriculum which would recognize and provide for both individual differences as well as meet the developmental needs of students, would remain unchanged, but our approach to curriculum development would be less direct than first planned. The preliminary study led to the adoption of a series of supportive objectives which were seen as necessary prerequisites to the actual curriculum revision phase of the study. The newly accepted supportive objectives described earlier sought to approach the underlying problem through methods which involved examination, experimentation and exploration.

EXAMINATION

(A) In order to better understand the curricular implications of vocational readiness, the study sought to examine the readiness level of ninth grade boys who selected vocational-technical programs. This examination was conducted primarily on the local level, using students from five of the six sending junior high schools. (At the time when this phase of the study was conducted, one of the present member-districts was not a full-participating district.) In addition to the local studies, additional insights into the vocational development of ninth grade vocational-technical boys were sought by reviewing in detail the related research. The local studies sought to gain an understanding of the vocational choice-related attitudes, decisions and behavior of the students in a variety of ways.

1. A total of 1285 eighth grade boys and girls and 1294 ninth grade boys and girls were administered Crites' (1965) Vocational Development Inventory (VDI). (See Appendix A) Crites' instrument provides an indication of the relative maturity of the student's

vocational choice-related attitudes. Crites has found in his work with this instrument that, "verbally expressed vocational attitudes mature with increasing age and grade during adolescence, much as theories of vocational development have proposed". (p. 27). The variables measured by the VDI items are, (a) involvement in the choice process, (b) orientation toward work, (c) independence in decision-making, (d) preference for vocational choice factors, and (e) conceptions of the choice process.

The VDI scores were used to develop a greater understanding of the choice-related attitudes held by boys who select vocational-technical programs. It was decided that this understanding could be made more meaningful by making a number of comparisons both with the student's composite scores as well as with separate item responses. The following comparisons were made at both the eighth and ninth grade levels: (a) vocational-technical bound boys with college preparatory boys, (b) vocational-technical bound boys with business-education bound girls, and (c) vocational-technical bound boys with college preparatory girls. In addition to these intra-grade comparisons, eighth grade vocational-technical bound boys were compared with ninth grade vocational-technical bound boys.

Additional insights were sought by correlating the composite VDI score with intelligence, as measured by the Otis Quick Scoring Intelligence Test.

2. Stated vocational and curricular preferences were also studied by asking the same 1285 eighth grade students and the 1294 ninth grade students, what occupation they planned to enter and what high school curriculum they expected to follow. Responses to the occupational preference question were catagorized as, (a) "Decided", if the student listed a single preference, (b) "Indecisive", if the student listed two or more occupations, and (c) "Undecided", if the student had no preference. Using these classifications, all of the comparisons between and within grades described above were again made. Student responses to the question concerning curricular preference were analyzed in two ways: (a) the percentage of eighth and ninth grade boys who select vocational-technical programs were compared and (b) the occupational preferences of eighth and ninth grade vocational-technical bound boys were analyzed to determine whether their preferences reflected existent or nonexistent vocational-technical programs.

3. In a further attempt to understand the choice-related behavior, attitudes and decisions of the ninth grade boys who select vocational-technical programs, a number of other instruments were given to a total of 100 of these students. This phase of the study is mentioned only briefly here, since it is discussed in detail under "experimental studies". The data eminating from the experimental study is very descriptive of the readiness level of vocational-technical bound ninth

grade boys. Included in this study were instruments designed to assess: (a) perceived vocationally-related problems, (b) competency in solving choice-related problems, (c) attitudes toward the choice-related assistance provided by the junior high school industrial arts program and guidance program, (d) attitudes toward vocational preference, (e) involvement in the choice-making process and (f) work values held by the students.

4. A fourth study sought to examine the vocational interests of ninth grade boys who select vocational-technical programs. A group of 50 ninth grade boys who had indicated a desire to enroll in vocational-technical education were given a list of 21 job titles which were taken from the Minnesota Vocational Interest Inventory (MVII) (1967). Each student was asked to rank-order the 21 job titles. In addition, the MVII was administered to each of the students in order to arrive at his measured interests. Comparisons were then made between the students' stated and measured vocational interests. This phase of the study was included since stated vocational interests serve as the primary justification for course selection for a large number of the students who enroll in vocational-technical programs. (A second phase of this study which will not be reported in this paper will study the stated and measured vocational interests of these same boys at the conclusion of their first year in vocational-technical education.

It is hypothesized that ninth grade students who show high congruence between stated and measured interests will perform considerably better in tenth grade vocational-technical programs than students who show relatively low congruence.)

(B) In addition to the above studies which assessed the attitudes, decisions, preferences and involvement of ninth grade boys as they attempted to choose high school level vocational-technical programs, another series of studies examined many of the same areas as evidenced by senior high school vocational-technical students. Once again numerous comparisons were made with non-vocational-technical students in order to provide more meaningful insights into the development of the vocational-technical boys.

1. A locally developed questionnaire (Appendix D), along with Crites' VDI were given to 144 sophomore, 152 junior and 120 senior vocational-technical students in order to better understand the choice-related attitudinal changes which take place during the three years a student is enrolled in vocational-technical programs.

2. A second study examined the work values held by high school level vocational-technical students by comparing: (a) the work values of 100 sophomore, 100 junior and 100 senior vocational-technical boys, (b) the work values of these same vocational-technical boys with the work values of a similar number of college preparatory boys,

college preparatory girls and business education girls. Center's (1950) work values preference list was used in this phase of the study.

3. A third study using the same sophomore students described in (2) above, sought to compare the changes in vocational preference which take place between grade nine and grade ten. The students used in this study had been asked to express their vocational preferences as ninth grade students and again as sophomores. This study sought to determine what effect curricular specialization had on the vocational preferences of students. (Ex) Do vocational-technical students indicate more stabilized preferences than other curricular groups?

4. A fourth study attempted to determine whether a significant relationship exists between ninth grade VDI scores and the students' achievement and attitude ratings in tenth grade vocational-technical programs. Due to an increase in applicants during the 1967-68 school year, it was necessary to be selective in the acceptance of tenth grade students, thus seriously undermining this phase of the study. Ideally, all students who sought admission should have been accepted. Since 57 boys were not accpeted the variability of the group was seriously curtailed.

EXPERIMENTATION

Although most of the objectives of the study were approached through the use of descriptive methods, such as those outlined above; one phase of the study did utilize experimental methods in an attempt to ascertain whether the use of guidance techniques, not currently used by sending junior high schools, could assist ninth grade boys in making the vocationally-related curricular decisions required of them at the ninth grade level. This phase of the study was designed to evaluate the relative effectiveness of the General Aptitude Test Battery (GATB) at the ninth grade level.

Specifically, this study sought answers to the following questions and tested the related hypotheses for rejection:

(1) Does the type of aptitude test information used in counseling affect the boy's involvement in the vocational choice-making process? The student's involvement in the choice-making process was determined by student responses to Gribbons' and Lohnes' (1966) Readiness for Vocational Planning Scale (RVPS). Since the information provided by the GATB appears to be more relevant to the curricular alternatives confronting the student, it was hypothesized that GATB-counseled students would become more involved in the choice-making process.

(2) Does the type of aptitude test information used in counseling affect the stated vocational preferences and course selections of these boys? Students used in the study were asked as eighth grade students to indicate their vocational and curricular preferences. The same questions were asked after counseling took place in grade nine. Changes in stated preferences were compared. It was hypothesized that GATB-counseled students would change their preferences more frequently, since the test information provided to them would in many cases suggest additional vocational competencies and course alternatives not previously considered.

(3) Does the type of aptitude test information used in counseling affect the vocational choice-making attitudes of these boys? Students were given Crites' (1965) Vocational Development Inventory (VDI) after being counseled with the results of the aptitude tests. It was hypothesized that students counseled with the GATB would score significantly higher on the VDI, because their greater involvement in the choice-making process would encourage the adoption of more "mature" choice-related attitudes.

(4) Does the type of aptitude test information used in counseling affect the competence of these boys to solve problems related to the vocational choices of adolescents? Students were tested with Katz's Guidance Test (1958). It was hypothesized that students counseled

with GATB results would score significantly higher on this instrument, because their greater personal involvement in the choice-making process would have carry-over effects to the hypothetical choice-making problems presented in this instrument.

(5) Does the type of aptitude test information used in counseling affect the student's perceived view of counselor services and more specifically his perceived view of the assistance provided by the aptitude test results? Students were asked to indicate how they perceived the assistance provided by the counselor and the assistance provided by the aptitude test results. It was hypothesized that students counseled with the GATB would perceive the assistance provided by the counselor and the test as being more helpful, since the GATB results were more directly related to their immediate decisions.

(6) Does the type of aptitude test information used in counseling affect the degree of certainty expressed by the student concerning his vocational choice and his course selection? Students were asked to indicate the degree of certainty they felt toward their vocational preference and course selection. It was hypothesized that students counseled with GATB results would express greater uncertainty, since other vocational areas not previously considered would contend with previously held preferences. Students counseled with GATB results would realize that they were capable of performing in a number of occupations and vocational courses, thus creating greater uncertainty on their part.

(7) Does the type of aptitude test information used in counseling affect the number of vocational choice-related problems as perceived by the student? Students were asked to check their perceived vocational choice-related problems, as listed on the Mooney Problem Check List (1967). It was hypothesized that GATB-counseled students would perceive more problems, because most students would be confronted with more vocational alternatives than they would normally consider, while other students would fail to qualify in their preferred vocations, thus presenting a number of choice-related problems.

(8) Does the type of aptitude test information used in counseling affect the number of vocations a student feels he is qualified to pursue? Students were asked to list all of the vocations for which they felt qualified. It was hypothesized that GATB-counseled students would mention more vocations, since they had been exposed to more relevant test information which in most cases would suggest a number of alternatives not considered previously.

Although a number of studies reported under related research influenced this phase of the study, the main impetus came from the findings reported by Super (1960) in The Vocational Maturity of Ninth Grade Boys. Super's findings indicate rather conclusively that the typical ninth grade boy lacks the necessary vocational development to make meaningful specific vocational or pre-vocational choices. If in fact ninth grade boys who select vocational-technical programs are not ready to make the choices required of them, the logical approach to take is to determine whether it is possible to induce vocational choice-related behavior, attitudes, and decisions through counseling or other school experiences. Since it has been suggested that the GATB "can be of significant value" in counseling ninth grade boys, it is important to determine empirically just what "values" related to vocational choice-making can be derived from the use of this test.

For the purposes of this study, the relative "values" of the GATB were determined by comparing students who were counseled with GATB results with a comparable group of students who were counseled with the results of the Differential Aptitude Test (DAT). The DAT was selected for the following reasons:

(1) The DAT is used extensively at the junior high school level.

(2) Three of the six junior high schools available for this study currently use the DAT at the ninth grade level.

(3) Whereas, the GATB provides a number of aptitude patterns specifically related to each of the vocational and technical programs, the DAT does not provide such specific detailed information for students planning to take high school level vocational-technical programs. (Ex.) In the area of graphic arts, the GATB provides

twelve aptitude patterns ranging from "bindery worker" to "machine compositor". The DAT does not provide any "non-professional" aptitude patterns in the graphic arts field.

Based on a questionnaire given to all ninth grade boys, a list of students was drawn up which included the names of all boys who indicated a desire to take vocational-technical programs in grade ten. In each of the three participating schools, twenty names were drawn at random from the list of interested boys. From each of the individual school lists, ten names were selected at random and assigned to one group, while the remaining ten names were assigned to a second group in an attempt to have comparable groups. Again using random assignment, one of the two groups was designated as the group to be tested and counseled with the results of GATB, while the remaining group was tested and counseled with the DAT results.

In each of the participating schools, the ninth grade counselor who was regularly assigned to counsel boys selecting vocational-technical programs was responsible for counseling both groups in his school. The required aptitude testing was completed during November and test results along with necessary interpretative information was then given to each counselor. Following receipt of the test results, individual counseling conferences were scheduled with each of the students.

All of the evaluative instruments used in the study were completed in March of ninth grade, immediately after students had indicated their vocational-technical program preferences, but prior to notification of course placement. Based on the available literature (Super, 1960; Crites, 1966; and Gribbons and Lohnes, 1966), it was felt that the instruments used assessed the areas related to vocational development which are most meaningful at the ninth grade level.

The data derived from the instruments used in this study was analyzed to determine whether the type of aptitude test information used in counseling does affect the choice-related behavior, attitudes, and decisons of students. In order to make the comparisons, a 2 x 3 factorial design with ten subjects per cell was utilized.

	DAT	GATB
Counselor-School A	10	10
Counselor-School B	10	10
Counselor-School C	10	10

By using this design and the analysis of variance, it was possible to test the main effects of both tests and counselor-school, as well as the possible effects of interaction. Due to the nature of some of the data, chi-square tests of significance were used to test several of the above hypotheses.

EXPLORATION

Due to the time limitations mentioned earlier, it was necessary to investigate potential curricular approaches simultaneously with the studies outlined above. During the 1966-67 school year letters of inquiry were sent to all state directors of vocational-technical education, leading educators and research workers in the fields of vocational-technical education, industrial arts education and vocational guidance, in order to uncover potential curricular programs in (1) high school level vocational-technical education, (2) junior high school industrial arts, and (3) junior high school vocational guidance. Junior high school vocational guidance and industrial arts were included in this phase of the study, because it was felt from the beginning that the ultimate success of high school level vocational-technical education depends, in large measure, on the quality of these two important junior high school programs. Their importance takes on added significance, when the developmental needs of the students being served is placed in proper perspective. Each of the operating and experimental programs reviewed was evaluated in light of the basic curricular objectives set forth at the beginning of the study.

As a result of the initial screening conducted during the 1966-67 school year, a number of promising programs were singled out for detailed evaluation during the 1967-68 school year. Included in the second stage evaluation were a number of visits to the schools and universities where the programs were either operating or where they were being developed and evaluated. In light of this program evaluation and the findings of the studies described previously, final curricular recommendations were formulated. The final recommendations are reported in Section VI of this report.

IV. RELATED RESEARCH

Preliminary studies conducted during the 1966-67 school year which centered on the theoretical formulations and empirical studies related to the vocational readiness of adolescent boys provided the focus for the curricular related studies described in this report. Only the more relevant related research is reported here, although a much larger body of research was studied intially. The related research is described under the following headings: (1) vocational development and career choice theories, (2) the curricular implications of the vocational readiness of ninth grade boys, and (3) effects of guidance techniques on vocational readiness and career choice. (4) The potential advantages of using the GATB at the ninth grade level.

1. Vocational Development and Career Choice Theories

One of the most significant developments in occupational psychology has been the development of theoretical formulations which place vocational or career choice in a developmental framework. Prior to the middle 1950's, when developmental approaches gained wide acceptance, only a limited number of studies emphasized the developmental nature of vocational choice.

Carter (1940) in his study on the patterning of adolescent interests stated:

> The development of vocational interest involves interactions between growth processes, some of which are educationally controlled and some of which are biologically controlled.... Growth in this field is a part of general maturation, of developing individuality. (p. 187).

Strong (1943) also proposed that vocationally related behavior changed systematically with age. Another early study by Dysinger (1950) suggested the potential implications of such an approach for vocational guidance.

> The guidance movement needs a word, parallel to the word "socialization" in social development, to express the vocational implications of maturation. The terms "vocational decision" and "vocational choice" suggest a single decision, but the emphasis should be placed upon the development process. (p. 198).

Ginzberg and his associates (1951) in a cross-sectional study concluded that vocational choice should be considered as a process, the process being largely irreversible, choices becoming more realistic with age, and compromise being an essential aspect of every choice. Ginzberg's study further suggested:

> To some degree, the way in which a young person deals with his occupational choice is indicative of his general maturity and conversely, in assessing the latter, consideration must be given to the way in which he is handling his occupational choice problem. (p. 60).

The developmental nature of vocational choice suggested by these early studies led in time to the concept of vocational maturity or readiness. Super (1955) defined vocational maturity as "the place reached on the continuism of vocational development from exploration to decline" (p. 153). Super's early studies proposed five dimensions of vocational behavior in early adolescence: (1) orientation to vocational choice, (2) information and planning, (3) consistency of vocational choice, (4) crystallization of traits, and (5) wisdom of vocational choice.

Crites (1964) further proposed that "orientation to vocational choice", "information and planning" and certain aspects of the "crystallization of traits" dimensions can be further analyzed into several different choice competencies and attitudes. According to Crites (1965),

> Choice competencies involve such mental processes as assimilating information about self and reality, resolving conflicts between alternative courses of action, establishing future goals, and relating means to ends through planning. In contrast, choice attitudes are more conative in nature and refer to involvement in the choice process, orientation toward work, independence in decision making, preference for choice factors, and conceptions of the choice process.... These choice competencies and attitudes can be thought of as comprising the construct of vocational maturity. (pp. 4-5)

It was within this framework that the studies described in this report approached the curricular implications of the vocational readiness of ninth grade boys.

2. The Curricular Implications of the Vocational Readiness of Ninth Grade Boys

Ginzberg and his associates (1951) delineated three major developmental periods (fantasy, tentative, and reality). The typical ninth grade boy, according to Ginzberg, is in the "capacity" substage of the tentative period. Individuals in the "capacity" substage tend to base their vocational choices on what they perceive their abilities to be. Hollender (1967) in another cross-sectional study (grades six to twelve) confirmed Ginzberg's finding concerning the growing reality of choice and the tendency for ninth grade boys to base their choices on perceived abilities.

Using the concept of vocational maturity outlined earlier, Super and his associates embarked on a twenty-year longitudinal study (Career Pattern Study). One of the early reports of this study, The Vocational Maturity of Ninth Grade Boys (1960), reported findings which have major implications for ninth grade guidance programs and high school level vocational-technical education as now offered in many schools.

> The typical ninth grade boy does not understand himself and his potentialities as well as he should in order to choose between levels and still less among fields of endeavor as reflected in the curricular alternatives open to him.... At this stage of development when adolescents are beginning to be called upon to make a series of pre-vocational and vocational choices, they need experiences which help them to develop better self-understanding and self-acceptance.... The counselor would do well in appraising the vocational development and evaluating the vocational prospects of ninth grade boys; to supplement ability and interest measures with assessments of vocational maturity....Boys who are vocationally immature are not ready for vocational or educational counseling of the directional decision-making type, involving the choice of one curriculum or occupation rather than another (pp. 153-156).

Gribbons and Lohnes (1966) in a longitudinal study closely paralleling the Career Pattern Study of Super reported "the urgent need for early assistance to youngsters in developing accurate perceptions of their abilities (p. 207)." This study further recommends that the emphasis during grades seven to nine should be on "realistic self-appraisal of abilities, interests, and values and the relation of these to present and future educational and occupational decisions (p. 212)".

Project TALENT (1966) reports that "at least half of the boys in high school had unrealistic career plans (p. 174)". In order to remedy this situation TALENT has recommended that the schools "must develop a better program for helping the student to understand both himself and the various roles for which he might prepare himself (p. 176)". Project TALENT findings also indicate that only 17% of the ninth grade boys had the same career plans one year out of high school as they had as ninth graders.

Stephenson (1955) in a study of occupational aspirations of ninth grade students also found a general lack of intelligent planning due to an inadequate and unrealistic view of their abilities and the abilities required in the world of work.

Cass and Tiedeman (1960) in a study designed to predict the senior high school curriculum of ninth grade students concluded that, "youth are little aware of aptitude as they enter high school. Youth still ignore potential because their information, progress, experience, and resulting orientations do not permit its consideration (p. 544)".

O'Hara and Tiedeman (1959) found that from grades nine to twelve there was progressive clarification of self-concepts in areas related to vocational choice. Clarification was not uniform in all areas. In the rank order of their degree of clarification the areas were: interests, work values, general values, and aptitudes. The agreement between self-estimated and tested aptitudes in the ninth grade was of the order of .45, by twelfth grade .69. Thus, once again, it would seem that aptitudes as perceived by students are the least clear and understood of the factors used by students in making their vocationally related decisions.

A number of studies have also dealt with the relationship between certain aspects of vocational development and the scholastic ability and achievement levels of students. Williams (1967) found there was a significant positive relationship between vocational maturity as measured by Crites' Vocational Development Inventory (VDI) and scholastic achievement. Hill (1965) in a study of students in grades eight to eleven, reports a significant relationship between reality of vocational choice and measured scholastic ability. In general, the less able students tended to make less realistic choices. Gribbons and Lohnes (1964) also report that non-college preparatory eighth grade boys scored lower on their Readiness for Vocational Planning Scale. The above studies indicate that the less academically talented students, many of whom select vocational programs, are less "ready" to make specific pre-vocational and vocational choices than the more academically capable college preparatory boys. Under present curricular arrangements the less vocationally mature students are required to make the earliest vocationally related choices. Gribbons and Lohnes (1966) feel that "delay in forced curriculum choice is not so much the answer as would be early identification of those with low vocational readiness. Then, some intensive guidance could be given in much the same way remedial reading is given (p. 206)". Herr (1966) suggests, "it is relatively futile to expect an individual to commit himself to a specific career in adolescence unless much more sophisticated occupational and educational information and many more exploratory opportunities are made available (p. 12)".

3. The Effects of Using Various Guidance and Counseling Techniques On The Choice-Related Decisions, Attitudes, and Behavior of Students.

A number of studies have been conducted to evaluate the impact of guidance and counseling techniques on the choice-related decisions, attitudes, and behavior of students. Gribbons (1960) found that at the eighth grade level, group guidance utilizing You: Today and Tomorrow, a guidance publication of the Educational Testing Service, did result in greater self-understanding of abilities, values and interests. At the senior level Toporowski (1961) found that seniors who were given special group guidance in occupational information made more independent choices and more choices in line with their measured interests. Toporowski concluded that, "it is felt that a short term intensified unit on occupations does aid students to develop a better basis for selecting occupations". Jesse and Heimann (1965) conducted a study using ninth grade boys, in which one group received individual counseling, another group received group guidance, while a third group received no counseling. Both the individually counseled group and the group guidance section scored higher on Crites' VDI than did the control group, although the differences were not significant at the .05 level. Hoyt (1955) in a similar study which did not use a control group, found that there was no difference between students who received individual counseling and group counseling in satisfaction with their vocational choice, the certainty of their vocational choice, and the realism of their vocational choice. Stone (1948) found that both individually counseled students and students who took an occupations course made "more adequate" choices of occupations than a control group who received no counseling or group guidance. Windward (1966) reported that brief educational-vocational counseling can bring about "systematic changes" in vocational self-concepts. Pool (1965) showed that vocational choices were more realistic as a result of individual vocational counseling, although there were differences in the need patterns of those who changed and those who did not change. Anderson and Heimann (1967), using an adaptation of Super's interview schedule with eighth grade girls, found that those who received individual counseling scored higher on this measure of vocational maturity than those who were not counseled. Despite these studies showing that various guidance and counseling techniques can prove beneficial in the vocational development process, Lipsett (1962) summarized his findings by saying that, "the counselor's role is a relatively minor one in the process of vocational development, with its ultimate compromise between many different influences (p. 436)". Whether guidance should attempt to exert a greater influence is not discussed by Lipsett, although most of the studies described above recommend greater and more effective efforts on the part of guidance personnel to assist students in the choice-making process.

Numerous attempts have been made by investigators to study the effect of using test information in a counseling situation on choice-related decisions, attitudes, and behavior. A number of studies (Johnson, 1951; Rogers, 1954; Folds and Gayda, 1966; Westbrook, 1967) all found that self-appraisal information provided through test interpretation did enable the subjects to make more realistic occupational choices. In one of the earlier studies, Hunt (1945) found that adults counseled with test results rated higher on all criteria of "occupational adjustment" than those counseled without test results. In addition to these reports of positive benefits, one study reported less encouraging results. Hills and Williams (1965) found that the communication of test results did not lead to positive changes in vocationally oriented self-perceptions. Instead, it appeared that test results which differed from the client's perceived view of himself had a negative effect on self-perception. Goldman (1961) concurred with this view and suggested that there is only limited evidence of the values derived by people from receiving reports of their test results (p. 353)". Tyler (1962) concluded that there is a need for more studies testing the effectiveness of instruments used by counselors.

The studies reported thus far indicate that, (1) the typical ninth grade boy is not developmentally ready to make meaningful pre-vocational and vocational choices, (2) boys who select vocational-technical programs tend to be less "ready" to make specific pre-vocational choices than college preparatory ninth grade boys, (3) there is a need for more effective guidance materials and techniques if students are to make the choices now demanded of them, (4) there is a pressing need to have ninth grade boys more clearly understand their abilities so that their vocational decisions will be based on more than interests and parental decisions.

In light of these studies and the recommendation of the Department of Public Instruction that the General Aptitude Test Battery could be of "significant value" in counseling vocational-technical bound ninth grade boys, it was decided that a review of the literature concerning the use of the GATB at the ninth grade level was necessary.

4. The Potential Advantages of Using the General Aptitude Test Battery at the Ninth Grade Level.

Although ninth grade norms were not made available for the GATB until 1959, there were a number of earlier recommendations to make the GATB available for students below the twelfth grade level. One of the strongest endorsements for the use of GATB at the ninth grade level came from Super (1953) who indicated the need for tests with "occupational significance" in counseling students at the time they select their high school programs.

> I am quite impressed with both the technical problems and the practical importance of the administration of tests that have shown occupational significance, such as the GATB, to youngsters when they are at about the ninth grade level. This is the choice point. This is where curricula are chosen. The decision may be changed later, but at least a preliminary decision as to type of curriculum is made and these curricular choices are, after all, pre-vocational.... Obviously, it is to the advantage of the student and of the school to have data that help the youngster to choose a curriculum which is oriented toward the type of work and the way of life that he is going to enter or that he may enter eventually (p. 243).

Wysong (1965) suggested that "the GATB offers some possible help in identifying student skills, in addition to academic skills, which may be related to learning potential in secondary school vocational education programs. Additional research in this area is needed (p. 511)". A review of past and on-going research in the GATB Manual (1967) indicates there are no studies using the GATB which attempt to evaluate the effects of counseling with the GATB at the ninth grade level.

The related research outlined above helped immeasurably in the formulation of the specific working objectives of the study, in the selection of evaluative instruments, and the establishment of preliminary criteria for curriculum evaluation. Without the guidance provided by the related research, the studies would have lacked the focus so necessary in curriculum development projects.

V. FINDINGS

In an attempt to better understand the vocational readiness of the ninth grade boys who select vocational-technical programs, Crites' VDI was administered to all eighth and ninth grade students in four of the five sending districts. All students were tested in order to determine whether vocational-technical students differ in any of their choice-related attitudes from other curricular groups. Table 1 shows the differences in mean scores of the major curricular groups. Students specifying home economics and general were not included in this phase of the study because of their relatively small numbers. In making the eight comparisons between grade levels (ex) eighth grade college preparatory boys with ninth grade college preparatory boys and eighth grade commercial girls with ninth grade commercial girls, it can be seen that in seven of the eight comparisons the mean

TABLE 1

Mean VDI Scores for 8th & 9th Grade Curricular Groups

Curricular Group	N	Mean
8th Comm. Girls	194	32.09
8th C.P. Girls	370	35.99
All 8th Girls	636	34.16
8th Voc. Boys	106	30.46
8th Ind. Arts Boys	96	30.62
8th C.P. Boys	379	33.57
All 8th Boys	649	32.61
All 8th Boys & Girls	1285	33.38
9th Comm. Girls	288	34.30
9th C.P. Girls	309	36.98
All 9th Girls	658	35.32
9th Voc. Boys	190	33.22
9th Ind. Arts Boys	43	30.40
9th C.P. Boys	335	34.49
All 9th Boys	636	34.12
All 9th Boys & Girls	1294	34.73

VDI score increases from grade eight to nine. Only the mean score of ninth grade industrial arts boys shows a decrease. This slight drop was due largely to the radical change in the composition of the two populations. The ninth grade industrial arts group having been depleted (a drop from 96 to 43), no longer had the same population as in grade eight. This general trend toward more vocationally mature attitudes confirms the developmental theories proposed by Super, Ginzberg and others. The increase in scores between grade levels also confirms the findings of Crites (1965) who used the VDI in his cross-sectional study of vocational attitudes.

In addition to the increase between grade levels another revealing comparison shows a rather consistent, and in most cases, highly significant difference between the scores of girls and boys. In six comparisons between girls and boys, the girls scored consistently higher on the VDI in all comparisons. Crites (1965) in his study found "only a few differences between males and females in the vocational attitudes and concepts which they endorse as self-descriptive" (p. 23).

The most important comparisons made were between the college preparatory boys and vocational-technical boys at the eighth and ninth grade levels. Most of the studies described previously which suggested that ninth grade boys are not vocationally ready to make specific vocational and pre-vocational choices had used samples composed primarily of college preparatory boys. One hypothesis proposed early in this study was that vocational-technical bound boys are less vocationally mature than the general population. The comparisons presented in Table 1 confirm this hypothesis. Using a t test to compare the differences in the means, it was found that at the eighth grade level the difference in scores between boys selecting vocational-technical programs and boys selecting the college preparatory course was highly significant (P of less than .001), while at the ninth grade level the difference in VDI scores was significant at less than .01.

As a result of insufficient facilities, a total of 57 ninth grade boys who selected vocational-technical programs were not able to enroll. After the student selection procedure had been completed, a comparison was made between the VDI scores of those selected and those rejected. The mean score of the 133 accepted students was 33.90 while the mean VDI score of the rejected student was 31.63. The difference being significant at the .01 level. This difference becomes more meaningful, since the scores did not enter into the selection procedure. Since past academic achievement enters into the selection procedure, and academic achievement and intelligence are positively correlated, it is reasonable to assume that intelligence and vocational maturity may also be related. If supported by additional studies, this hypothesis could help to explain the lower scores received by boys who indicate a preference for vocational-technical fields. Another series of studies presented later in this section seeks to provide insights into this relationship.

An examination of the VDI item responses by curricular groups reveals a number of significant differences and trends which provide much more meaningful information than the comparisons of total scores presented in the last section. The following seven comparisons were made:

1. 8th grade college preparatory* boys with 8th grade vocational-technical boys (AC)
2. 8th grade college preparatory girls with 8th grade vocational-technical boys (BC)
3. 8th grade commercial girls with 8th grade vocational-technical boys (DC)
4. 9th grade college preparatory boys with 9th grade vocational-technical boys (EG)
5. 9th grade college preparatory girls with 9th grade vocational-technical boys (FG)
6. 9th grade commercial girls with 9th grade vocational-technical boys (HG)
7. 8th grade vocational-technical boys with 9th grade vocational-technical boys (CG)

*Curricular placement of all students was determined by their stated curricular preference for high school.

Table 2 on the following two pages shows the above comparisons for each of the fifty VDI items. The numbers appearing in the chart reflect the number of true responses. (Ex.) On item 19, a total of 29 of the 50 eighth grade vocational-technical boys gave true as their answer, whereas only 6 of 50 eighth grade college preparatory girls answered true. Fifty students were selected at random for each of the eight curricular groups studied. Of the 350 possible comparisons, 58 of the comparisons were significant at the .05 level or less. Reference to Appendix A will reveal the exact content of each item as well as the "correct" answer to all items. The 350 comparisons made tested the hypothesis that the difference between the two proportions being compared was zero against the two-sided alternative hypothesis that the difference was not zero. In all cases the five per cent level was used, thus all of the significant comparisons reported were significant at the .05 level or less.

Among the more meaningful significant differences and trends noted were the following:

(1) Item 5 (A person can do any kind of work he wants as long as he tries hard.) 92% of eighth grade vocational-technical boys responded true, whereas only 64% of the ninth grade vocational-technical boys responded true. This indicates a significant change in attitude (less than .001) from grade eight to grade nine. Quite

TABLE 2

Comparison of 8th and 9th Grade V.D.I. Item Responses By Curricular Groups

Trues

VDI Item	A 8th CP Boys	B 8th CP Girls	C 8th VT Boys	D 8th Com. Girls	E 9th CP Boys	F 9th CP Girls	G 9th VT Boys	H 9th Com. Girls	Significant Comparisons (.05 level or less)
1	4	1	5	4	4	3	2	1	
2	48	46	44	47	50	46	46	48	
3	12	6	10	10	8	4	6	10	
4	2	3	7	4	10	2	2	2	EG
5	30	40	46	41	24	33	32	42	AC-CG-GH
6	1	0	5	2	1	1	2	2	
7	34	24	40	32	32	26	40	36	BC-FG
8	18	9	30	24	22	11	27	20	AC-BC-FG
9	44	35	45	41	46	37	41	45	BC
10	30	17	21	23	23	17	13	23	EG-GH
11	30	27	37	30	27	20	36	27	BC-FG
12	9	3	17	12	8	5	7	13	BC-CG
13	33	40	28	37	30	42	38	40	BC-CG
14	2	2	3	0	2	0	1	0	
15	17	12	14	22	15	17	9	15	FG
16	22	16	24	19	22	18	12	21	EG
17	8	4	9	5	5	3	6	5	
18	15	15	22	19	14	11	14	17	
19	10	6	29	10	6	6	4	7	AC-DC-BC-CG
20	12	9	21	21	8	11	20	20	BC-EG
21	45	40	40	44	29	36	38	40	EG
22	44	43	42	41	44	45	44	43	
23	7	2	11	4	5	1	6	7	BC-CD
24	1	1	9	5	2	0	5	3	AC-BC
25	17	16	26	21	21	14	15	17	BC-CG

TABLE 2 (Continued)

VDI Item	Trues								Significant Comparisons (.05 level or less)
	A 8th CP Boys	B 8th CP Girls	C 8th VT Boys	D 8th Com. Girls	E 9th CP Boys	F 9th CP Girls	G 9th CP Boys	H 9th Com. Girls	
26	26	26	26	32	28	32	27	31	
27	13	16	21	10	13	15	16	9	CD
28	21	25	26	26	18	26	19	16	
29	24	13	15	18	25	18	8	12	EG-FG
30	13	17	23	19	13	18	19	26	AC
31	4	6	11	5	6	5	10	9	
32	20	11	29	20	15	14	25	25	BC-FG-EG
33	16	9	20	19	17	9	15	16	BC
34	16	25	24	20	6	18	14	20	EG-CG
35	45	46	42	43	42	48	42	44	
36	7	4	11	3	1	0	6	4	BC-CD-FG-EG
37	3	1	9	4	3	2	5	4	BC
38	41	43	45	37	45	47	39	44	
39	40	45	33	37	30	47	37	45	BC-FG-GH
40	24	27	34	24	25	22	26	30	AC-CD
41	10	15	6	11	11	12	9	10	BC
42	41	46	39	41	35	44	39	44	
43	3	2	6	5	4	6	10	4	
44	10	5	15	10	6	6	7	5	BC
45	45	43	42	38	41	38	35	45	GH
46	39	45	38	32	46	49	39	44	FG
47	44	48	42	43	46	45	40	47	
48	13	11	13	7	13	10	7	9	
49	21	14	21	20	20	10	20	15	FG
50	3	0	4	2	3	0	3	2	

clearly, the ninth grade vocational-technical boys have developed a greater awareness for the need of attitudes, in addition to interests. It is also quite interesting to note that other curricular groups, notably the commercial girls feel quite strongly on this matter, since 82% at the eighth grade level and 84% at the ninth grade level feel that "effort" makes any job possible.

(2) Item 7 (Your job is important because it determines how much you can earn.) At both the eighth and ninth grade levels, 80% of the vocational-technical boys answered true. The importance of money to the vocational-technical boy when compared to students selecting college preparatory courses is quite obvious and is supported by the data presented later dealing with the work values of senior high school students.

(3) Item 8 (Work is worthwhile mainly because it lets you buy the things you want.) Much like item 7, the responses to this item indicate that vocational-technical boys at both grade levels respond in the affirmative more often than other curricular groups studied.

(4) Item 10 (I often daydream about what I want to be, but I really haven't chosen a line of work yet.) Particularly at the ninth grade level, vocational-technical boys suggest that they have chosen a "line of work", while other groups indicate a greater

preference for "daydreaming". Whether the choice is a "wise" choice is another question.

(5) Item 11 (Knowing what you are good at is more important than knowing what you like in choosing an occupation.) More frequently than any other group, vocational-technical boys answered true to this item, indicating that they have a greater awareness of the role played by aptitude and other related factors.

(6) Item 12 (Your parents probably know better than anybody which occupation you should enter.) The responses to this item indicate a significant change between the responses of eighth and ninth grade vocational-technical boys. The responses of all groups suggest that parental views are not considered as the most knowledgeable.

(7) Item 14 (Work is dull and unpleasant.) The fact that only ten students out of four hundred answered true to this item indicates quite clearly that work is not viewed with disdain by adolescents.

(8) Item 16 (I don't know how to go about getting into the kind of work I want to do.) Although 48% of eighth grade vocational-technical boys answered true (high for the eighth grade), only 24% of the ninth grade vocational-technical boys answered true (low for the ninth grade). It is quite possible that vocational and educational

guidance services are limited at the eighth grade level for this student and/or the eighth grade vocational-technical boy does not seriously consider this problem at the eighth grade level. The "rush" to make a specific curricular decision in grade nine probably causes the sudden shift in attitude.

(9) Item 19 (I don't know what courses I should take in school.) Of the four significant differences reported, the highly significant change in attitude which takes place between the eighth and ninth grade levels with vocational-technical boys is most meaningful. Although 58% of eighth grade vocational-technical boys answered true, only 8% of ninth grade vocational-technical boys answered true. Quite clearly the eighth grade vocational-technical boy, of all eighth grade groups, feels least informed concerning his educational plans. The responses to this item are much like the responses to Item 16.

(10) Item 21 (By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.) When comparing all eighth grade students with all ninth grade students, it is interesting to note that the incidence of true answers decreases from eighth to ninth grades, possibly indicating a growing uncertainty on the part of the students.

2

(11) Item 22 (There are so many things to consider in choosing an occupation, it is hard to make a decision.) Surprisingly, 346 of 400 students answered in the affirmative, indicating that most adolescents recognize the complexity of the problem. The answers to item 23, in much the same way suggest that most students (357 of 400) admit they "think about the job they want to enter." These answers suggest that most students give this topic a great deal of thought and place great importance on it.

(12) Item 25 (You can't go very far wrong by following your parents' advice about which job to choose.) The significant difference between the responses of eighth and ninth grade vocational-technical boys, similar to the responses to item 12, indicate a growing "independence of choice" on the part of vocational-technical students more so than found in other curricular groups.

(13) Item 29 (The job I choose has to give me plenty of freedom to do what I want.) The difference in the responses of ninth grade college preparatory boys and ninth grade vocational-technical boys was highly significant (less than .001). Vocational-technical boys seem to place little value on this job quality, possibly indicating a desire or expectancy that their work will be more directed.

(14) Item 32 (Whether you are interested in a particular kind of work is not as important as whether you can do it.) The pattern of responses to this item is quite similar to the responses to item 11 which asked basically the same question. Once again vocational-technical boys place greater importance on aptitude than do other curricular groups although the responses of ninth grade commercial girls are identical. It is interesting to note that the commercial girls are more like the vocational-technical boys in their responses than college preparatory boys. This trend, which is found in a number of items, would seem to suggest that vocational-technical boys and commercial girls due to the nature of their curricular preferences are facing basically the same vocationally-related problems and looking at them in a similar manner. At the ninth grade level, these two curricular groups differed significantly on only four items, whereas vocational-technical boys and college preparatory boys differed significantly on nine items.

(15) Item 34 (As long as I can remember I've known what kind of work I want to do.) The overall responses to this item indicate that less than 50% of both grade levels feel their choice has remained the same for a number of years. Furthermore, ninth grade vocational-technical boys more so than eighth grade

vocational-technical boys, show significatnly less preference stability, 28% in ninth and 48% in eighth. As the real choice of a vocation comes closer, vocational-technical boys are looking at newly discovered job areas.

(16) Item 36 (You get into an occupation mostly by chance.) Although the percentage of true responses is small in all cases, it is important to note that in four of seven comparisons, vocational-technical boys responded in the affirmative significantly more times than other curricular groups. Responses to item 37 also point up the tendency for vocational-technical boys to feel that factors beyond their control play a major role in job placement and success. Again the percentage responding in the affirmative is small, although vocational-technical boys lean more toward this attitude than other curricular groups.

(17) Item 38 (When it comes to choosing a job, I'll make up my own mind.) All curricular groups indicate a high degree of independence in choice-making which again confirms the fact that parents and others will not dictate their choices. If students want to make their own choices, it is important that adequate guidance be provided if the choices are to be based on all relevant factors.

(18) Item 43 (I really can't find any work that has much appeal to me.) All curricular groups indicate by their responses

that they have identified jobs which could appeal to them. In analyzing the responses to an independent item regarding vocational preference, many of the students who answered false to this item, indicated two or more vocational preferences. (This factor will be analyzed more closely later.)

(19) Item 45 (If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.) In light of the high incidence of true responses to this item, it would appear that most eighth and ninth grade students, including vocational-technical students, see the parent as an advisor but not as the dictator in matters related to vocational selection.

The differences in response patterns described above should be studied closely by guidance personnel in an attempt to better serve the boys who select vocational-technical programs. The unique misconceptions held by this group may help to explain some of the problems they experience when enrolled in high school level vocational-technical programs.

Of the 2579 eighth and ninth grade students who were tested with the VDI, 257 ninth grade boys were used in a study which sought to determine whether a significant correlation does exist, as suggested by the comparisons made in the first study described in this section, between vocational maturity and intelligence.

Super (1960) had been one of the first to suggest that such a relationship might exist.

> One would expect positive relationships between intelligence and behavior considered indicative of vocational maturity, because the more intelligent an individual is, the more capable one would expect him to be in dealing with developmental tasks in various areas of behavior, including the vocational (p. 78).

Super (1960) subjected his hypothesis to empirical study and found the following correlation between intelligence and his vocational maturity indices:

Indices	Correlation	
1. Concern with choice	.16	
2. Acceptance of Responsibility for Choice and Planning	.25	
3. Specificity of Information	.12	
4. Specificity of Planning	.37	
5. Use of Resources	-.12	
6. VM Index Total	.29	(p. 105)

Super concluded, "it is clear that vocational maturity as here defined tended to be related to intelligence.....(p. 105-106)".

The 257 ninth grade boys used in our correlational study had all been tested with the Otis Quick-Scoring Test of Mental Ability as well as the VDI. The resulting product moment coefficient of correlation was .424 which was highly significant (P of less than .001).

A second correlational study used fifty ninth grade vocational-technical bound boys who had been tested with the GATB. The G score of GATB, which is the intelligence factor, was correlated with the students' VDI scores. The resulting product moment coefficient of correlation was .478 which was also highly significant (P of less than .001). In both of the studies it became quite clear that intelligence and vocational maturity as measured by Crites' VDI were significantly correlated, thus supporting Super's hypothesis as well as serving to point up important implications for vocational-technical education.

In a related study, it was found that high school level vocational-technical students who had VDI scores in the top 20% of their grade level had signficantly higher IQ's as measured by the Otis Quick-Scoring Test of Mental Ability than students who scored in the bottom 20%. Table 3 shows the mean intelligence score of students who score in the top 1/5 on VDI to be approximately 10 points higher than students scoring in the lowest 1/5 on VDI.

TABLE 3

Relationship of IQ and VDI Scores

Grade	Mean IQ Top 1/5 on VDI	Mean IQ Lowest 1/5 on VDI	N
10	105.95	93.17	60
11	104.77	98.93	64
12	105.75	91.32	48

In a fourth study, 45 ninth grade college preparatory boys were matched on IQ (Otis) with a group of 45 ninth grade boys who had selected vocational-technical programs. Table 4 described these findings.

TABLE 4

Matched Group Comparison of IQ and
VDI Scores of Ninth Grade Boys

Group	Mean IQ	Mean VDI	S.D.-IQ	S.D.-VDI
9th CP Boys	104.04	33.84	9.10	4.40
9th VT Boys	104.18	34.49	9.15	4.25

From the above study it can be seen that when matched according to intelligence as measured by Otis QS, the vocational-technical and college preparatory ninth grade boys do not differ significantly in vocational maturity as measured by Crites' VDI.

The difference in vocational maturity which does exist between boys selecting vocational-technical education and boys selecting college preparatory programs is explained in large part by the comparative differences in IQ. The mean IQ for ninth grade boys selecting the college preparatory course being 114.46, while the mean IQ for boys selecting the vocational-technical program was 99.73.

In summary, the findings discussed above suggest that:

(1) Boys who indicate a preference for vocational-technical education at the eighth and ninth grade level score significantly lower on Crites' VDI than boys who indicate a preference for the college preparatory program.

(2) Boys selecting vocational-technical programs at the eighth and ninth grade level respond differently to a number of VDI items indicating that the choice-related attitudes held by this group are unique in several areas.

(3) There is a highly significant correlation between VDI scores and intelligence which in turn may help to explain the lower scores received on the VDI by boys who select vocational-technical programs.

An analysis of curricular preferences was still another approach to the problem of understanding the vocational choice-related attitudes, decisions and behavior of boys who select vocational-technical programs. Table 5 shows the expressed curricular preferences of all eighth and ninth grade students. A number of pertinent observations can be made through an analysis of this data. The decrease from eighth to ninth grades in the proportion of boys selecting the college preparatory program and industrial arts program helps to explain the significant increase in the proportion of boys who select vocational-technical programs. Whereas 14.78% of the eighth grade boys indicated a preference for industrial arts and 16.31% an interest in vocational-technical education, by ninth grade only 6.65% of the boys mentioned industrial arts while 29.37% preferred vocational-technical programs. The shift in curricular preferences in Schools B and C was primarily responsible for this trend away from industrial arts. The cause for the changes in these specific schools cannot be explained based on available information, however it is quite possible that at the eighth grade level the students are not aware of the differences between the two programs. Ideally, the curricular decisions to be made midway through grade nine should be understood by the eighth grade students, so they have sufficient time to study the alternatives open to them.

A similar shift in preference occurs for girls between grades eight and nine. 30.46% of the eighth grade girls expressed an interest in the commercial program while 43.77% of the ninth grade girls planned to pursue the commercial program. This shift may result from the ninth grade experiences of girls who enrolled in several college preparatory subjects in grade nine and experienced some academic difficulty. The decrease in the proportion of boys selecting the college preparatory program is not nearly as sharp, although many of those who do change their preference eventually select vocational-technical programs.

TABLE 5

Curricular Preferences of Eighth and Ninth Grade Girls and Boys

School	Grade	Sex	Business	CP	General	Home Ec. &Voc.		Totals
A	8	F	42	49	0	10		101
A	9	F	52	39	4	12		107
B	8	F	47	204	3	4		258
B	9	F	102	161	0	5		268
C	8	F	21	15	12	8		56
C	9	F	40	24	0	11		75
D	8	F	33	64	7	25		129
D	9	F	54	44	12	11		129
E	8	F	51	38	2	2		93
E	9	F	40	41	3	3		87
Totals	8	F	194	370	24	49		637
Totals	9	F	288	309	19	42		658
						Ind. Arts	Voc.	
A	8	M	14	55	1	26	8	104
A	9	M	19	48	5	20	19	111
B	8	M	10	190	4	31	14	249
B	9	M	12	177	1	4	70	264
C	8	M	5	35	8	13	21	82
C	9	M	3	22	0	1	45	71
D	8	M	4	55	7	11	46	123
D	9	M	10	54	17	13	33	127
E	8	M	12	44	4	15	17	92
E	9	M	6	34	6	5	23	74
Totals	8	M	45	379	24	96	106	650
Totals	9	M	50	335	29	43	190	647

In a further attempt to understand the students' vocational decisions and behavior, a series of studies were conducted which sought to gain insights into the vocational interests of the students. At the descriptive level all eighth and ninth grade students were asked to state their vocational preference. Students were asked to state their vocational preference or preferences, or if they had none, they were to indicate they were "undecided". Table 6 shows the vocational preferences for the 106 eighth grade boys who indicated an interest in vocational-technical education. (Since a number of students indicated more than one preference, the frequencies given in Table 6 will total more than 106.)

The preferences of ninth grade boys are shown in Table 7 and when catagorized in Table 8 and compared with the eighth grade preferences, a number of revealing contrasts become evident. The most meaningful contrast is in the difference between the proportion of students who express a preference for "vocational-technical courses offered." The sharp increase from 49.6% to 71.4%, indicates the effects of the curricular decisions required of ninth grade boys. Prior to ninth grade, a higher percentage of students select occupational areas which are not offered by the vocational-technical school. (21.3% in grade eight and 8.7% in grade nine.) For the most part, the vocational-technical boys do not overestimate their abilities when asked to indicate their vocational preference. If anything, they tend to underestimate their abilities.

TABLE 6

Vocational Preferences of Eighth Grade Boys Who Select Vocational-Technical Programs

Undecided	30	Office Work	1
Barber	2	Airplane Mechanic	1
Draftsman	2	Carpenter	6
Mason	1	Auto Body	5
Businessman	1	Machinist	9
Architect	1	Stock Car Driver	3
Musician	2	Oceanographer	1
Electronics Tech.	6	Electrician	6
Professional Sports	3	Truck Driver	4
Armed Services	7	Pilot	1
Farmer	8	Auto Mechanic	20
Salesman	1	Engineer	5
Forest Ranger	1	Welder	1

TABLE 7

Vocational Preferences of Ninth Grade Boys Who Select Vocational-Technical Programs

Undecided	38	Electrician	14
Draftsman	12	Stock Car Driver	4
Mason	5	Printing Trades	9
Armed Services	1	Machinist	9
Electronics	18	Truck Driver	3
Teacher	2	Policeman	1
Auto Mechanic	31	Mailman	1
Forestry	2	Engineer	2
Auto Body	12	Accountant	1
Chemist	1	Farmer	6
Carpenter	24		

TABLE 8

Vocational Preferences of 8th & 9th Grade Boys Who Select Vocational-Technical Programs

	8th Grade		9th Grade	
	NR	%	NR	%
Vocational-Technical Courses Offered	63	49.6	140	71.4
Vocational-Technical Courses Not Offered	12	9.5	7	3.6
Professional and Semi-Professional	15	11.8	10	5.1
Armed Services	7	5.5	1	.5
Undecided	30	23.6	38	19.4
TOTALS	127		196	

The second important observation which can be made from the data in Table 8, is the fact that approximately 20% of the vocational-technical boys indicate that they are "undecided". In this case, "undecided" means the student does not have any vocational preference even though they do select a specific vocational-technical area for training. For these boys their curricular choice is not supported by a genuine interest in the program.

A closer look at the expressed vocational preferences, indicates that most of the occupations mentioned by both eighth and ninth grade boys tend to be rather traditional and established fields of work. Furthermore, the students tend to lean heavily toward the more "masculine" job areas. Very few of the occupational areas mentioned can be catagorized as "clean hands" occupations as defined on the Minnesota Vocational Interest Inventory (1967). It was anticipated that the range of interests at the eighth grade level would reflect a broader spectrum of jobs. It would appear that the students' knowledge of the world of work is rather restricted at both grade levels although the restriction at the ninth grade level was expected due to the pressures imposed by forced curricular decisions.

In another study, a group of 50 ninth grade boys who had expressed an interest in vocational-technical programs were asked to select from a list of 21 non-professional job titles, six jobs they would prefer and six jobs they would dislike. In each case the six were to be placed in rank order. The remaining nine jobs were assigned the same rank. The 21 jobs used in this study corresponded to the 21 interest areas measured by the Minnesota Vocational Interest Inventory (MVII) (1967). Each of the 50 students was then asked to complete the MVII. After completing the MVII, the responses were scored and a comparison was made between the students' stated interests and his measured interests. Table 9 shows the rank ordering of the 21 job areas, when the rankings of each of the 50 students were combined. (ex) The group of 50 boys ranked carpenter second on the basis of their expressed interests while the ranking growing out of the MVII placed carpenter fifth.

Using the data in Table 9, it was found there was a -.38 rank difference correlation between stated and measured vocational preferences of the ninth grade boys used in the study. A rank difference correlation of -.13 was found between the stated and measured interests in a second study in which ranks and not standard scores from MVII were used. Both the -.38 and -.13 correlations resulted from grouping the standard scores and rankings of all students together in order to arrive at a correlation coefficient. A third approach, analyzed the individual rank difference correlations of each individual student. In this analysis the individual rank difference correlations ranged from -.27 to .66. The mean rank difference correlation being .217. Although this presents a somewhat more favorable picture than the previous approaches, it is still a rather restricted correlation and indicates there is little agreement between stated and measured interests.

The significant differences between the stated and measured interests, particularly in the "clean hands" type occupations supports the conclusion reached earlier in the analysis of the free-choice interests expressed by ninth grade boys who select vocational-

TABLE 9

Comparison of Stated and Measured Vocational Preferences of Ninth Grade Boys

Job Title	Stated Preference Ranking	Measured Preference Ranking
Baker	20	2
Carpenter	2	5
Electrician	1	21
Food Service Manager	12	6
Hospital Attendant	18	10
Industrial Arts Teacher	7	20
Machinist	3	14
Painter	5	8
Plasterer	13	16
Plumber	10	17
Pressman	14	19
Printer	19	13
Radio-TV Repair	6	18
Retail Sales Clerk	21	12
Route Salesman ("Milk Wagon Driver")	15	11
Sheet Metal Worker	11	9
Stock Clerk	17	1
Tab Machine Operator	8	15
Truck Driver	9	7
Truck Mechanic	4	4
Warehouseman	16	3

technical programs. Of the five lowest ranked stated interests, stock clerk, hospital attendant, printer, baker and retail sales clerk, all with the exception of printer might be classified as "clean hands". On the other hand the highest ranking stated interests, electrician, carpenter, machinist, truck mechanic and painter, all tend to represent the traditional, masculine trades which are well known to most youth. The rank ordering of the measured interests indicates that many of the boys who say they dislike specific occupations, rate quite high on these same jobs as measured by the MVII.

An analysis of the MVII area scales, mechanical, health services, office work, electronics, food service, carpentry, sales-office, clean hands and outdoors reveals the following rank-ordering by the vocational-technical bound ninth grade boys: (1) Clean hands, (2) Electronics, (3) Food Service, (4) Outdoors, (5) Carpentry, (6) Office Work, (7) Sales-office, (8) Health Services, and (9) Mechanical. Although the question was not asked of the students or counselors, it is safe to assume that most students and counselors would indicate that the so-called "Mechanical Vocations" would rate near the top with these boys. This again suggests that the stated vocational preferences of these boys should be challenged preferably by exploratory experiences.

The contrasts uncovered by this study suggest there is a need to present relevant occupational information and exploratory experiences to the students so that some of the hitherto neglected occupational areas will be better understood by adolescent boys. There is a great need to expand the rather limited and stereotyped vocational interests of these boys.

In summary, the studies related to the vocational and curricular preferences of ninth grade boys who select vocational-technical programs reveal the following:

(1) There is a significant shift in the proportion of boys who select vocational-technical programs from grade eight to grade nine. Much of the increase is due to a lack of understanding by eighth grade boys concerning the content of the various curricular programs.

(2) The boys who select vocational-technical programs in both grades eight and nine tend to select from a rather limited range of vocational areas. Most of the preferred areas are the traditional and more masculine fields. Seldom do these boys indicate an interest in "clean hands" type occupations.

(3) There is reason to believe that the stated vocational preferences of these students do not agree with measured interests as determined by the MVII. Although stating a preference for the traditional masculine fields, many of these boys have measured interest patterns which indicate that they share the interests of workers in "clean hands" type occupations.

The stated vocational preferences of ninth grade boys are based on rather limited information and experiences, but serve as the major criteria for the selection of high school level vocational-technical programs. There is a pressing need to expand these interests to areas not initially considered by the students. It is the responsibility of the schools to expand the vocational interests of these boys, so that they can make more meaningful selections. Schools must also lead the way by increasing the range of programs offered, so that boys may be prepared in a wider range of vocations. An awareness of existing patterns of vocational interests and curricular preferences should serve to provide the impetus needed to effect these changes. Additional insights into the developing interest patterns of these boys will be presented later in the description of the vocational interests of the senior high school vocational-technical students. Further information concerning the vocational interests of the ninth grade boys will also be described in the report of the findings of the experimental counseling study.

In an attempt to better understand the vocationally related attitudes, values, interests and plans of high school level vocational-technical students a number of descriptive studies were conducted with students in grades ten through twelve. Once again, Crites' VDI was used in one study to evaluate the changes in vocational attitudes which occur between grades ten, eleven and twelve. A total of 144 sophomore, 162 junior, and 120 senior vocational-technical boys were given the VDI in addition to a questionnaire to be described later. Table 10 provides a shop by shop breakdown of the mean scores received by these students on the VDI along with the grade level means from eight to twelve.

TABLE 10

VDI Scores By Shops and Grade Level

Shop	Mean VDI Score
Electronics	38.19
Electrical Tech.	37.08
Printing	36.27
Carpentry	35.32
Technical Design	35.24
Auto Mechanics	34.96
Auto Body	34.00
Machine	33.95
Agriculture	33.14
Masonry	31.53
Maintenance	29.70

Grade Level	Mean VDI Score
Grade 8	30.46
Grade 9	33.22
Grade 10	33.25
Grade 11	36.10
Grade 12	35.57

Table 10 reveals that sophomore vocational-technical boys do not experience a significant increase in mean scores when compared with the scores of ninth grade boys who select vocational-technical programs, although a comparison of item responses presented in Table 11 and the responses in Table 2 does show a significant difference in the response pattern to eight of the fifty items. (Items 7-11-13-28-29-32-44-45) Table 10 also shows the one deviation from the general trend of increasingly higher scores as the student progresses in school. Senior boys did not score higher on VDI than their junior counterparts. An analysis of item responses gives some clues as to why and how the junior and senior boys differ. In a further attempt to show that a significant correlation exists between VDI scores and intelligence, each of the eleven shops were rank ordered according to both mean VDI scores and mean Otis IQ scores. The resulting rank difference correlation coefficient was .82 which reaffirms the highly significant relationship found previously.

Table 10 also indicates that the most significant increase between grade level occurs between grades ten and eleven. There are a number of possible explanations for this significant change. Most boys who decide to drop their vocational-technical programs do so either during the sophomore year or at the end of the year. In addition the highest incidence of attrition from school occurs during the sophomore year. It is again assumed that those who leave vocational-technical education and/or leave school tend to score lower on measures of intelligence, thus most of those who leave have lower VDI scores which in turn raises the mean score of those who remain. This relationship undoubtedly helps to explain some of the significant increase in mean VDI scores between grades ten and eleven. The slight drop in grade twelve can be best understood by an analysis of the individual VDI items. The senior boy who is at the threshold of job entry or active duty in the armed services tends to be somewhat hesitant as he approaches one of the key turning points in his life. The senior boy realizes he must soon earn a living in a specific job, whereas the junior boy's attitudes are not based on the prospects of an imminent change in status. It would be quite interesting to pose these same questions to students who are actually in their first year of full time employment in order to determine whether another change in attitude takes place. Crites (1965), in his study which involved a cross-section of all students, found there was a general upward trend from grade five to ten, but at the junior level there was a slight drop followed by a significant increase at the senior level. The difference in the findings of the two studies probably results from the basic dissimilarity in the two samples used.

An analysis of Table 11, which used samples of 50 students at each grade level, reveals a number of interesting differences in proportion of true responses given by the vocational-technical boys. On Item 7 (your job is important because it determines how much you can earn), the junior boys differ significantly from both the sophomore and senior students. In this case the junior boys showed a response pattern identical with eighth and ninth grade boys. (At all three grade levels, 80% of the boys responded true.) The senior responses to item 21 (By the time you are 15, you should have your mind pretty well made up about the occupation you plan to enter.) Seniors differ significantly from juniors in their responses to this item, 28% of the seniors answered true, while 60% of the juniors answered in the affirmative. This may indicate that seniors who did select tentative vocations at the age of 15, no longer believe in the wisdom of their early selections. One of the most revealing item analyses, is the grade level response patterns to item 35 (I want to really accomplish something in my work--to make a great discovery or earn lots of money or help a great number of people.) 90% of the juniors answered true to this item while only 52% of the seniors answered true. This sudden shift in enthusiasm may again reflect the sense of uncertainty which seems to prevail at the senior level. A significant difference in the response pattern to item 40 (When I am trying to study, I often find myself daydreaming about what it will be like when I start working.) as a further indication of senior year uncertainty.

In still another attempt to assess the shifts in vocationally related attitudes and decisions, a questionnaire was given to over

TABLE 11

VDI Item Responses of High School Vocational-Technical Students

VDI Item	(Number of True Responses) A Grade 10	B Grade 11	C Grade 12	Significant Comparisons (.05 level)
1	0	0	0	
2	40	41	38	
3	10	5	2	AC
4	4	2	4	
5	36	29	32	
6	2	8	8	
7	30	40	27	AB-BC
8	34	22	24	AB-AC
9	44	42	34	AC
10	8	10	13	
11	16	25	15	AB-BC
12	5	4	4	
13	28	16	19	AB
14	3	4	2	
15	10	20	16	AB
16	7	8	7	
17	8	3	6	
18	15	14	8	
19	5	3	2	
20	15	14	21	
21	32	30	14	BC
22	41	44	46	
23	10	7	8	
24	2	7	5	
25	17	18	9	AC-BC
26	35	33	34	
27	13	15	22	
28	10	13	14	
29	18	14	20	
30	24	30	24	
31	5	7	8	
32	10	11	11	

TABLE 11 (Continued)

	(Number of True Responses)			
VDI Item	A Grade 10	B Grade 11	C Grade 12	Significant Comparisons (.05 level)
33	14	21	17	
34	12	6	8	
35	39	45	26	AC-BC
36	10	2	10	AB-BC
37	5	2	9	
38	45	44	46	
39	34	27	26	
40	30	31	16	AC-BC
41	11	6	4	
42	41	42	42	
43	2	5	2	
44	18	9	10	AB
45	47	46	40	
46	43	46	38	
47	40	40	35	
48	10	13	27	AB-BC
49	16	11	18	
50	2	1	0	

2000 senior high school students. 100 students were randomly selected for each of twelve specific curricular and grade level groupings. (ex) 10th grade commercial girls, 12th grade college preparatory boys, etc. The questionnaire given to these students appears as Appendix C. Question 3, (How strongly do you feel about the occupation you have listed under number 2?) was an attempt to see whether differences do exist between curricular groups in the degree of vocational certainty expressed by high school students. More specifically, this question sought to determine whether vocational-technical boys differed significantly from other students who had not been exposed to specific occupational experiences.

Table 12 shows the percentage of students responding to this question. An analysis of the responses of vocational-technical boys indicates that there is a steady decline in the degree of vocational certainty expressed. (40% of the sophomores as opposed to 37% of the juniors and 27% of the seniors feel they are "certain" of their choice.) This decline indicates that although boys have remained in a program for three years, they have reason to question their entry into the field for which they were trained. College preparatory boys who have not had training in their preferred vocation tend to express even less certainty than the vocational-technical boys, although there is no significant shift over the years. The differences between commercial girls and college preparatory girls are not as dramatic as the differences between male curricular groups. The drop in the proportion of vocational-technical boys who indicate vocational "certainty" would be more dramatic if the original tenth grade population were used as a basis for the study in grade twelve. A large number of the original sophomores have left vocational-technical education by grade twelve and thus are not a part of the

TABLE 12

Degree of Certainty Expressed Toward Preferred Vocation

Response	10th CP boys	10th Voc boys	11th CP boys	11th Voc boys	12th CP boys	12th Voc boys	10th CP girls	10th Com girls	11th CP girls	11th Com girls	12th CP girls	12 Com girls
A	14	40	14	37	16	27	25	30	20	22	30	33
B	44	40	55	48	54	39	43	49	52	59	56	52
C	18	8	18	15	16	17	20	9	18	8	10	9
D	24	12	13	9	14	17	12	12	9	11	4	6

A. I am certain this is the occupation I will follow.
B. I have some reservations, but I am fairly certain I will stay with this choice.
C. I have many reservations and probably will change my goal in time.
D. I am very uncertain. I have no idea as to the occupation I will follow.

comparison. It would appear that first-hand exploratory experiences help to challenge the early vocational preferences of these students. Ideally, schools should provide an opportunity for many and varied exploratory experiences so that students will come to know both themselves and the world of work.

The students used in the above study were also asked to indicate how well they knew their abilities, aptitudes and interests as they related to selecting an occupation. Table 13 shows the same curricular responses to this question as presented above. Vocational-technical boys showed that as they progressed in their programs, they felt they knew their job related abilities and interests much better than they did in the earlier grades. (23% of the sophomores, 30% of the juniors and 42% of the senior vocational-technical boys felt they knew themselves "Very Well". The same pattern was also found to exist with college preparatory boys which may suggest that the vocational-technical training may not be the major cause of the shift. It may well be that boys, with or without first-hand vocational experiences, change in this manner during the high school years. Commercial girls on the other hand remain fairly constant while college preparatory senior girls show a significant increase in "perceived self-knowledge". The high proportion of students in all categories who check the middle response "Somewhat" indicates that many students feel that they have more to learn about their vocationally related abilities and interests before they can make a valid choice of an occupation.

The same questionnaire used for the two studies described above was also used to compare the work values of these high school level curricular groups. Centers' (1949) list of work values was used in the analysis of the work values held by these students.

TABLE 13

Perceived Self-Knowledge of Vocationally Related Abilities and Interests

Response	10th CP boys	10th Voc boys	11th CP boys	11th Voc boys	12th CP boys	12th Voc boys	10th CP girls	10th Com girls	11th CP girls	11th Com girls	12th CP girls	12th Com girls
Very Well	23	23	24	30	38	42	26	24	28	13	50	26
Somewhat	69	70	69	65	57	55	71	70	70	78	46	67
Very Little	8	7	8	5	5	3	4	5	3	8	4	7

Once again, the main concern was the work values held by vocational-technical students. (The questionnaire appears in Appendix C.)

The analysis of Table 14 reveals the following concerning the work values held by high school students:

(1) The least preferred work values of vocational-technical students were A-D-H (A job where you could be a leader, the boss or become famous.) These values are seldom associated with the jobs for which these students are being prepared, thus reflect valid judgements by the students.

(2) Vocational-technical boys as they move from tenth to twelfth grade move more and more toward "interesting jobs". The same trend is noticeable in commercial girls.

(3) Girls tend to rate "being a boss" much lower than boys.

(4) "Job security" is a more important work value for vocational-technical boys than for college preparatory boys. Commercial girls also rate "job security" much higher than do college preparatory girls.

(5) "Expression of feelings and talent" is rated higher by both college preparatory boys and girls than by vocational-technical boys and commercial girls.

(6) "Pay" is ranked higher by vocational-technical boys than by college preparatory boys. The same relationship is found between commercial girls and college preparatory girls. Furthermore, boys as a group rate "pay" as more important than girls.

(7) "Helping others" is rated higher by college preparatory boys than by vocational-technical boys. College preparatory girls also rate this value higher than do commercial girls. Girls as a group rate it higher than do the boys.

In general, vocational-technical boys place a higher value on material values than do college preparatory students. There is no way of knowing whether the values are the result of their experience

TABLE 14

Mean Rank Order of Work Values
Expressed by High School Students
(See Appendix C for listing of values)

Work Value	10th CP boys	10th Voc boys	11th CP boys	11th Voc boys	12th CP boys	12th Voc boys	10th CP girls	10th Com girls	11th CP girls	11th Com girls	12th CP girls	12th Com girls
A	7.56*	8.07	6.66	6.97	6.14	7.33	7.33	8.14	7.48	8.14	7.26	8.12
B	2.42	3.33	2.18	2.69	2.48	2.56	2.63	3.08	3.04	2.76	2.30	2.24
C	5.76	6.04	5.66	5.53	5.90	6.11	5.65	5.68	5.42	5.18	6.06	5.64
D	7.78	8.44	7.86	7.31	7.94	7.67	9.03	9.07	8.64	9.10	8.78	8.62
E	5.50	3.85	4.92	4.53	5.72	4.47	5.09	3.42	5.34	3.96	5.30	4.18
F	3.74	4.18	3.80	3.97	2.98	4.06	2.79	3.55	2.82	3.70	2.72	3.90
G	4.36	3.92	5.14	4.25	5.12	4.72	6.16	5.56	5.82	5.08	6.22	5.26
H	7.94	7.07	7.40	6.97	7.64	7.58	8.21	7.66	7.84	7.30	8.30	7.96
I	5.08	5.30	5.68	6.50	5.08	5.89	2.92	3.18	3.12	3.74	2.78	3.56
J	4.76	5.07	5.48	6.25	6.20	4.78	5.31	6.15	5.50	5.90	5.52	5.40

*A rank of 1.00 represents the highest rank possible. It would mean that all 50 students ranked the value first.

in vocational-technical education or whether this difference existed previously. More likely, the tendency exists before the exposure to the vocational-technical education. In light of the vocations for which students are prepared, it would seem that most vocational-technical boys hold work values which conform to the jobs which they plan to enter. Although there are some minor changes in work values held between grades ten and twelve, it does not appear that any meaningful changes occur during the three years in which boys are enrolled in vocational-technical programs.

HIGH SCHOOL VOCATIONAL-TECHNICAL STUDENT QUESTIONNAIRE

A questionnaire, Appendix D, was given to 426 senior high school vocational-technical students in a further attempt to understand the students' vocationally-related attitudes and plans. The responses to a number of the questionnaire items are presented in Table 15. The responses were analyzed by grade level and by VDI scores. Students who scored in the top one-fifth of their class on VDI were compared with students who scored in the middle three-fifths and the bottom one-fifth of their class. This analysis was used so that the relationship between vocational maturity and vocational plans and attitudes could be studied more closely.

The responses to question 8, (If you were now in ninth grade, which program would you want for high school?), reveals that approximately 80% of the sophomore and junior classes said they would take the same program they had selected as ninth graders, while only 66% of the senior boys said they would choose the same program. This change in the senior attitude again reflects the uncertainty prevalent in studies reported earlier. The 66% figure would be considerably lower if students who had left their programs since grade ten were included in the study. At the senior level, only 38% of the students who scored in the lowest one-fifth on VDI indicated they would take the same program again. This pattern suggests that students with low vocational maturity as measured by VDI, tend to question their early vocational decisions more than students with relatively high VDI scores.

The responses to item 10 indicate quite clearly that most students (62%) feel that their choice of a vocational-technical program in grade nine was their own choice. (Responses to item 11 confirms the incidence of self-selection.) Although not shown in Table 15, only a small percentage of all students (8%) felt their parents had provided the impetus for their course choice. Once again it would appear that the role of the parents in course selection is a relatively minor one. A comparison of responses to item 5 (Father's occupation) and item 19 (What job do you expect to hold as your first full-time job?) indicates that few boys (4%) expect to

TABLE 15
SENIOR HIGH SCHOOL QUESTIONNAIRE RESPONSES
(See Appendix D for questions)

	10th Grade				11th Grade				12th Grade				Totals			
	Top 1/5 VDI	Btm.	Mdl.	Tot.	Top	Btm.	Mdl.	Tot.	Top	Btm.	Mdl.	Tot.	Top	Btm.	Mdl.	Tot.
8A	22	22	70	114	21	25	84	130	18	9	52	79	61	56	206	323
8B	7	7	16	30	12	8	12	32	6	15	20	41	25	30	48	103
10K	20	13	51	84	23	16	61	100	17	13	49	78	60	42	161	262
Non K	9	16	35	60	10	17	35	62	7	11	25	42	26	44	95	164
11E	20	11	49	80	25	18	61	104	16	10	43	69	61	39	153	253
11FG	4	2	12	18	2	5	22	29	4	3	7	14	10	10	41	61
Others	5	16	25	46	6	10	13	29	4	11	22	37	15	37	60	112
12 yes	21	20	44	85	13	21	50	84	9	5	27	41	43	46	121	210
12 no	8	9	42	59	20	12	46	78	15	19	45	79	43	40	133	216
15 great deal	1	2	8	11	2	2	13	17	2	2	7	11	5	6	28	39
15 some	10	12	36	58	11	17	36	64	10	10	24	44	31	39	96	166
15 none	18	15	42	75	20	14	47	81	12	12	41	65	50	41	130	221
18 yes	20	14	62	96	22	21	65	108	14	12	52	78	56	47	179	282
18 no	3	3	9	15	4	2	12	18	3	7	10	20	10	12	31	53
undecided	6	12	15	33	7	10	19	36	7	5	10	22	20	27	44	91
22 yes	12	9	18	39	10	16	24	50	5	10	13	28	27	35	55	117
22 no	17	20	68	105	23	17	72	112	19	14	59	92	59	51	209	309
24 yes	16	17	43	76	23	17	58	98	10	15	40	65	49	49	141	239
24 no	13	12	43	68	10	16	38	64	14	9	32	55	37	37	113	187
25 yes	12	8	41	61	5	11	31	47	3	5	11	19	20	24	83	127
25 no	17	21	45	83	28	22	65	115	21	19	61	101	66	62	171	299

enter the trade pursued by their father, thus discounting a belief commonly held that many boys follow in their father's footsteps. Item 27 (What vocation do your parents want you to follow?) provides additional information concerning the parent's role in the choice-making process. In analyzing the many different responses to this item, it can only be said that the free-response answers indicated that most parents did not express a preference or "they didn't care" or "I don't know". (Due to the nature of the responses, answers were not categorized for analysis.)

Further analysis of the responses to item 10 indicated that 5% of the students indicated that the industrial arts teacher had the primary influence on their choice, while 8% felt the junior high school counselor was most influential.

The role of the counselor was also analyzed in questions 11 and 12. In question 11, approximately 9% of the boys said they chose their program because of the help provided by the counselor. In item 12, 210 students said the counselor gave them information and help which was needed to make a good choice of programs, while 216 students said such aid was not given. There were no significant differences between students with high and low VDI scores, but there was a significant difference between grade level responses. Whereas 59% of the sophomores felt the counselor gave them the needed information, only 52% of the juniors and 34% of the seniors felt they had received such aid. It would seem that the longer the students are away from the ninth grade decision, the more difficult they find it to recall the source of any assistance which may have been given.

Items 11 and 15 give additional insights into the role of the junior high school industrial arts program. Based on the responses to item 11, 5% of the boys said they chose their program because of the experiences in junior high school industrial arts. The seniors again tend to feel less strongly toward the assistance provided. Item 15 which asked, did your industrial arts teacher(s) provide information about vocational (job) possibilities, suggests that few students felt the industrial arts teacher provided such information. Only 9% felt a "great deal of information" was given, 39% felt "some" information was given and 52% said they had received no information related to job possibilities. Differences between grade levels and level of VDI scores was not significant.

The questions described above suggest that the objectives of the guidance program and the industrial arts program should be evaluated in order to determine whether they should assume a greater role in assisting students as they attempt to select vocational-technical programs. Both guidance and industrial arts have the potential for providing these much needed services. If they have not achieved their full potential in this area, curricular changes should be considered. In light of current curricular programs, the non-college bound youth needs the same quality of vocational and educational guidance as provided the college bound, only at an earlier date. Vocational guidance should be a function of the industrial arts programs and other curricular areas as well. It should not be restricted to the counselor alone; and, more importantly, it should not be left to the senior high school years.

The questionnaire also asked students if they planned to work in a job for which their shop training would prepare them. The responses to this question, item 18, shows that 66% of all students said they did plan to enter a field for which they were being trained, while 12% answered no and 22% said they were undecided. Surprisingly, there was no significant shift in the responses by grade level, although once again it must be remembered that the junior and senior percentages would be changed by those who had left the programs during the preceding years. The fact that approximately one-third of all students have some reservation regarding their future work indicates that "change" is not unusual. The pattern of responses was not significantly different when analyzed according to VDI scores.

Question 24, (Do you feel you still have questions about your future vocation?), shows again that many students are aware of the need for more assistance. 56% of all students said they did have questions. Based on student responses to questions in instruments previously described, it was expected that seniors would indicate a greater desire to ask questions, but an analysis of the data showed no significant difference between the three classes. There was also no significant difference between students who scored high and low on VDI.

Item 25, (Do you feel you had enough background information to make a good choice of an occupation when you were in grade nine?), sought to give still another view of the vocational guidance made available at the ninth grade level. Indirectly, the item also indicates the growing uncertainty of seniors. 70% of all students indicated that they did not have sufficient information to make a choice. 84% of the seniors felt they did not have sufficient "background information", while only 58% of the sophomores gave a negative answer.

In summary, the questionnaire given to the senior high school vocational-technical students indicates that:

(1) Approximately 75% of all boys said they would choose the same vocational-technical program if they were to choose again, although seniors were more hesitant (66%) to select the same

program. (Students who left their programs over the three-year period would lower this figure even more.)

(2) 62% of all students said their choice was their own. School agencies, friends and family did not influence course selections as much as might be expected.

(3) The guidance and industrial arts programs were not as influential in the choice-making process as might be expected.

(4) Most students (70%) feel they did not have sufficient background information in grade nine in order to make a vocational decision.

In general, this study points up the need to provide experiences and information at the junior high school level which will assist students as they select a senior high school curricula. For the most part, student choices are based on their own interests and are little affected by the school, family, or even friends although peers do play a role which should not be minimized.

RELATIONSHIP OF NINTH GRADE VDI SCORES TO MEASURES OF ACHIEVEMENT AND ATTITUDE IN FIRST YEAR VOCATIONAL-TECHNICAL PROGRAMS

Initially, it was proposed to determine whether ninth grade VDI scores could be used to identify students who might experience difficulty in high school vocational-technical programs. This phase of the study ran into two snags which seriously undermined the study. On one hand an overabundance of applicants for the 1967-68 school year resulted in the rejection of 57 students. This situation seriously curtailed the range of students admitted, which in turn made it impossible to study the relationship as it exists at all levels. The second weakness in this proposed study developed when the relationship between VDI scores and intelligence was uncovered. Given these two restrictions, it was not feasible to study this relationship as originally proposed.

Despite these limitations, an attempt was made to access the relationship between ninth grade VDI scores and attitude ratings given the students during the third marking period of their sophomore year. 100 sophomores were grouped into three categories based on their ninth grade VDI scores. (High VDI - 38 plus, Average VDI - 33 to 37, and Low VDI - 32 and less)

Table 16 shows the distribution of attitude ratings received

TABLE 16

Relationship of Ninth Grade VDI Scores and Sophomore Attitude Ratings

VDI Score	Attitude Rating				
	A	B	C	D	F
High VDI	7	5	6	1	1
Average VDI	12	23	13	7	5
Low VDI	4	6	6	2	2

by the students. Using a chi-square test of significance, it was found there was no significant difference in the attitude ratings received by students categorized according to VDI scores.

Closely related to this analysis was a second study which used the same students in an attempt to determine whether ninth grade VDI scores are related to the grades received by the students in their vocational-technical program. (Grades used in this study reflected the overall evaluation by the teacher, the students' knowledge, skills as well as attitude.) An analysis of Table 17 shows that there is a significant difference in the grades received by students when students are categorized according to VDI scores. The fact that high scoring VDI students are more capable, helps to explain much of the relationship found. For this reason, the use of

VDI scores as predictors of "success" in vocational-technical education will add little if measures of past achievement and/or intelligence are used as predictors. The VDI appears to be a useful guidance tool at the junior high school level, but as a predictor variable it has only limited value.

Since this phase of the study was seriously weakened by circumstances already described, the findings reported above should be evaluated in light of these shortcomings. Ideally, all applicants should be admitted if such a study is to have any real meaning. This was not the case in this study.

TABLE 17

Relationship of Ninth Grade VDI Scores
and Sophomore Vocational-Technical Grade

VDI Score	Grade Received				
	A	B	C	D	F
High VDI	8	6	4	1	1
Average VDI	12	26	10	8	4
Low VDI	2	5	9	3	1

EXPERIMENTAL COUNSELING STUDY FINDINGS

The experimental counseling study described previously sought to compare the effects of two types of aptitude tests on the vocational choice-related behavior, attitudes, and decisions of ninth grade boys who select vocational-technical programs. The comparison of the DAT and GATB resulted from a growing feeling on the part of school officials that the GATB and the rather specific aptitude patterns which it provides could be of "significant value" to students as they prepared to select their high school program. The study findings presented on the following pages provide not only a comparison of the effects of utilizing the two aptitude tests, but it also provides additional insights into the vocational choice-related attitudes, decisions, values and interests of the ninth grade boys who indicate a preference for vocational-technical education. This latter information will provide additional information not given in the earlier section dealing with the vocational attitudes and decisions of ninth grade boys.

This phase of the total study sought to test a number of hypotheses related to the questions posed earlier in the report. The findings of this study are outlined below along with a statement of the original question and a brief description of the instruments used.

I. Does the type of aptitude test information used in counseling affect the boy's involvement in the vocational choice-making process? Gribbons' and Lohnes' (1966) Readiness for Vocational Planning Scale (RVPS) was used to test the related hypothesis. Gribbons' and Lohnes' study which is longitudinal in nature used the RVPS in the eighth grade phase of their study as well as in the follow-up studies conducted in grade ten, grade twelve, and the post-high school study. Scoring procedures outlined by the authors in their report Career Development were used to score the responses of the boys used in this study. The RVPS questions are listed in Appendix B.

Gribbons and Lohnes found that eight variables contributed to RVPS. The eight variables are described by the authors as:

(1) Variable I - Factors in Curriculum Choice: Awareness of relevant factors, including one's abilities, interests, and values and their relation to curriculum choice; curriculum available; courses within curricula; the relation of curriculum choice to occupation choice. (Questions 1, and 3 through 12)

(2) Variable II - Factors in Occupational Choice: Awareness of relevant factors, including abilities, interests, values; educational requirements for choice; relation of specific

high school courses to choice; accuracy of description of occupation. (Questions 15-23)

(3) Variable III - Verbalized Strengths and Weaknesses: Ability to verbalize appropriately the relation of personal strengths and weaknesses to educational and vocational choices. (Questions 24-28)

(4) Variable IV - Accuracy of Self-Appraisal: Comparisons of subject's estimates of his general scholastic ability, verbal ability, and quantitative ability with his school attainments on scholastic aptitude tests, English grades, and mathematics grades. (Questions 29-31)

(5) Variable V - Evidence for Self Rating: Quality of evidence cited by subject in defense of his appraisal of his own abilities. (Questions 32-34)

(6) Variable VI - Interests: Awareness of interests and their relation to occupational choices. (Questions 35-38)

(7) Variable VII - Values: Awareness of values and their relation to occupational choice. (Questions 39-42)

(8) Variable VIII - Independence of Choice: Extent of subject's willingness to take personal responsibility for his choices. (Questions 44-46)

*Questions 2, 8, 13, 14, 43, and 47 were not included by the authors in the analysis. (pp. 25-26)

Table 18 presents in summary form the scores, by school-counselor and treatment, received by the sixty students participating in this study. Table 19 outlines in summary form the findings of this study. From this table it can be seen that: (a) Only one variable, Variable VIII, showed a significant difference due to the treatment. In this one case the boys counseled with the GATB did score significantly higher on "Independence of Choice". The other seven variables along with the composite score did not show any significant differences in treatment effects. (b) Students did differ significantly by school-counselor on four of the eight variables as well as on the composite scores. School-Counselor A students scored highest on three of the four variables where significant differences were observed as well as scoring highest on the composite score. School-Counselor C students scored highest on Variable VIII. (c) Although none of the nine interactions were significant at the .05 level, interaction in Variable I did approach significance at the .05 level. The failure to find significant interaction suggests that the participating counselors did not excessively "favor" either of the treatments.

Based on this investigation, the hypothesis that the GATB counseled students will demonstrate greater involvement in the vocational choice-making process, can be rejected at the .05 level. DAT-counseled students scored somewhat higher on three of the

TABLE 18

Analysis of RVPS Factors:
Experimental Counseling Study

RVPS FACTORS

I. GATB Treatment

School	I	II	III	IV	V	VI	VII	VIII	Total
A	157	118	62	72	26	36	12	53	536
B	155	74	29	63	19	26	4	53	423
C	123	104	50	67	22	33	14	60	473
Total	435	296	141	202	67	95	30	166	1432

II. DAT Treatment

School	I	II	III	IV	V	VI	VII	VIII	Total
A	162	105	76	67	22	27	26	40	525
B	105	74	34	68	12	27	4	40	364
C	180	80	45	66	27	26	15	59	498
Total	447	259	155	201	61	80	45	139	1387

TABLE 19

Analysis of Variance
Readiness for Vocational Planning Scale
Experimental Counseling Study

Factor	(A) School Counselor	(B) Treatment (GATB-DAT)	(A x B) Interaction
1	NS	NS	NS
2	*	NS	NS
3	**	NS	NS
4	NS	NS	NS
5	NS	NS	NS
6	NS	NS	NS
7	***	NS	NS
8	****	*	NS
Total Score	*	NS	NS

*	.05 is greater than P, P is greater than .01
**	P of less than .005
***	P of .05
****	P of less than .01

variables while GATB-counseled students scored higher on five variables as well as on composite scores. (Performance on Variable IV showed virtually identical results (202-201) favoring GATB-counseled students.)

II. Does the type of aptitude test information used affect the boy's stated vocational preferences and course selections. In order to study this question, students were asked to indicate their vocational and curricular preferences while they were in grade eight and again after being counseled in grade nine. It was hypothesized that GATB-counseled students would change their preferences more frequently.

In order to test this hypothesis, a comparison was made between the two treatments to see if the proportion of students who changed differed significantly. Of the thrity students counseled with the GATB, a total of 17 expressed different vocational preferences than they did the year before. Of the thirty students counseled with the DAT, fifteen expressed different preferences. The observed difference (.57 versus .50) was not significant at the .05 level.

The fact that 53% of the students studied, did change their vocational preference between eighth and ninth grades, indicates again that vocational preferences are not stable during adolescence. According to the findings of Project TALENT (1966) only 17% of the ninth grade vocational preferences will remain constant one year after high school graduation. Other findings reported earlier indicate that many high school vocational-technical students are no longer planning to enter the field they chose while in grade nine.

Change must be expected and vocational-technical education must not only accept the fact that vocational preferences are not stable, but they should provide the opportunity for controlled vocational exploration.

Unfortunately, the changes in course selection could not be studied with the precision available in the study of changes in vocational preference. The lack of precision resulted from the way in which the eighth grade question regarding course preference was worded. Students were asked as eighth graders to merely select one of the broad curricular areas. (ex) vocational-technical, industrial arts, general, commercial, and college preparatory. Students were not asked to specify one particular vocational area. (ex) auto body or machine. In light of this shortcoming, the only comparison which could be made was the changes in curricula. Of the thirty students counseled with the GATB, four changed their preference to the college preparatory program while two changed to the commercial or business education program. Two DAT-counseled boys changed to the college preparatory curricula while one changed to the commercial program. The differences between the two treatments was not significant at the .05 level. It would appear that most boys who initially indicate an interest in vocational-technical programs, do not change to another broad curricular area. As pointed out earlier, there are many cases of non-vocational-technical eighth grade preferences being changed to vocational-technical areas in grade nine.

III. Does the type of aptitude test information used in counseling affect the vocational choice-making attitudes of these boys? It was hypothesized that GATB counseled boys would score higher on Crites' (1965) VDI which was used in this phase of the study. Table 20 shows the results of this study. Through the use of the analysis of variance it was found there were no significant differences between treatment effects or between school-counselor effects. Interaction was also found not to be significant at the .05 level. The hypothesis that GATB-counseled students would demonstrate more vocationally mature attitudes was rejected.

An analysis of individual item responses did reveal, however, that there were significant differences (.05 or less) in the response patterns of the two treatment groups on four inventory items. An analysis of the four item responses in Table 21 reveals two meaningful items which are of special interest in this study. Items 11 and 32 which are highly related, show that GATB-counseled students feel that knowing one's abilities is of prime importance in selecting a position. Whether these students apply this attitude in their own search for a vocation cannot be confirmed.

TABLE 20

Experimental Counseling Study VDI Scores

	DAT Group Score	DAT Mean	GATB Group Score	GATB Mean
School-Counselor A	345	34.5	358	35.8
School-Counselor B	359	35.9	337	33.7
School-Counselor C	359	35.9	342	34.2

TABLE 21

Experimental Counseling Study VDI Item Responses

Item	GATB-Counseled True Responses	DAT-Counseled True Responses	Two-Tailed P
11	16	8	.04
28	17	10	.07
32	21	10	.004
39	24	15	.014

GATB-counseled students also indicate they are less aware of the requirements of jobs (Item 28). This may be caused by their exposure to jobs not previously considered. Even though GATB-counseled students responded in a "less mature" manner to this item, their responses suggest that they are aware of their lack of job-related knowledge. This awareness if followed-up by a search for information is quite desirable.

IV. Does the type of aptitude test information affect the competence of these boys to solve problems related to the vocational choices of adolescents? Again, it was hypothesized that GATB-counseled students would demonstrate greater competence in problem solving. Katz's Guidance Test (HGU) was used in this phase of the study.

Using the analysis of variance, it was found there was no significant difference between school-counselors or treatment effects, nor was interaction significant. Table 22 shows that GATB-counseled students did somewhat better on this instrument. The performance of both groups of students on this instrument was somewhat shocking. For the most part, the students demonstrated by their responses that they are unable to resolve choice-related problems which are frequently encountered by students of their age. On a number of items, it would appear that the students are unable to

TABLE 22

Experimental Counseling Study
HGU Guidance Test Scores

	GATB-Counseled Correct Responses	DAT-Counseled Correct Responses
School-Counselor A	126	113
School-Counselor B	136	108
School-Counselor C	119	115

analyze available background information and arrive at a logical solution. If the students handle their own choice-related decisions in a similar manner, numerous and potentially costly mistakes could result.

V. Does the type of aptitude test information used affect the student's perceived view of the counselor's services? It was again hypothesized that GATB-counseled students would perceive the counselor as being more helpful in the decision-making process. In order to test this hypothesis students were asked: How much assistance did the counselor provide in helping you to select a program for ninth grade? Students were then asked to check one of four responses: A Great Deal, Some, Very Little, and None. Table 23 shows the breakdown of responses to this question.

TABLE 23

Experimental Counseling Study
Perceived Help Provided by Counselors

Response	GATB-Counseled	DAT-Counseled
Great Deal	12	3
Some	11	16
Very Little	6	6
None	1	5

Using chi-square techniques to analyze the difference in responses, it was found that the difference was significant at the .05 level. This finding suggests that GATB-counseled students perceived the assistance provided by their counselor as being more helpful.

VI. Does the type of aptitude test information affect the degree of certainty expressed by students concerning their vocational choice and course selection? It was hypothesized that GATB-counseled students would feel less certain about their choices, since other choices would be available to them which were not previously considered. Students were asked: How strongly do you feel about your choice of a vocation and your sophomore year course? The students were then asked to check one of four possible answers for each of these two questions. The answers being: Certain, Some

TABLE 24

Experimental Counseling Study
Degree of Certainty Expressed for Vocational Preference

Response	GATB-Counseled	DAT-Counseled
Certain	19	12
Some Reservations	7	10
Many Reservations	3	5
Very Uncertain	1	3

reservations, Many reservations, and Very uncertain. Student responses concerning their choice of vocation appear in Table 24.

The difference in the responses was not significant at the .05 level although GATB-counseled students did indicate greater vocational certainty. This finding ran counter to the proposed hypothesis. It would appear that many students had their initial preferences re-enforced by the test results and as a result did not consider other alternatives.

Students were also asked to specify how certain they felt about their curricular choice. Table 25 shows once again that the two treatment groups did not differ significantly in their responses to this question. Initially it was felt that the responses to this question and the preceding question would be practically the same. The results show that there was a slight shift in the responses to the two questions. Again the two groups did not differ significantly in their responses, however the fact that only 52% of the students felt certain about their sophomore course, again indicates that even prior to program entry, students are far from convinced that their decision will remain constant.

TABLE 25

Experimental Counseling Study
Degree of Certainty Expressed for Curricular Selections

Response	GATB-Counseled	DAT-Counseled
Certain	15	16
Some Reservations	7	9
Many Reservations	5	3
Very Uncertain	3	2

VII. Does the type of aptitude test information affect the number of vocational choice-related problems perceived by the student? It was hypothesized that GATB-counseled students would perceive more vocationally-related problems. Students were given the Mooney Problem Check List and instructed to check those statements which were "troubling them". (Only those 30 items on the check list which dealt specifically with vocationally-related problems were analyzed.) Table 26 shows the results of this comparison.

Using the analysis of variance, it was found that students counseled with the GATB did differ significantly in the number of perceived problems checked. The difference between treatment groups was significant at less than .01. The differences between

TABLE 26

Experimental Counseling Study
Incidence of Checked Vocationally-Related Problems
(Mooney Problem Check List)

	Number of Problems Checked	
	GATB-Counseled	DAT-Counseled
School-Counselor A	74	49
School-Counselor B	101	50
School-Counselor C	64	47

School-Counselor were not significant at the .05 level. Interaction was also found to be not significant. Based on the analyses presented previously, it would seem that although GATB-counseled students perceive more problems, they have not involved themselves any more in the solution of the problems than the students counseled with the DAT. The awareness of the problems did not result in any greater action on the part of the students.

One check list item where the two treatment groups differed significantly was one item which stated the problem as: "Choosing best subjects to prepare for a job." 19 of the 30 GATB-counseled students checked this problem, while only 8 of 30 DAT-counseled students checked it as a problem. A second item where the differences were significant was a problem which stated: "Wanting advice on what to do after high school." 15 of 30 GATB-counseled boys checked this problem, while only 5 of 30 DAT-counseled students checked it as a problem.

VIII. Does the type of aptitude test information affect the number of vocations for which a student feels he is qualified? Once again it was hypothesized that GATB-counseled students would feel qualified in more vocations than DAT-counseled students. In order to test this hypothesis, students were asked to list all of the jobs for which they felt qualified. DAT-counseled students mentioned a total of 62 vocations while GATB-counseled students mentioned a total of 107 vocations. Using a t-test to test for significance between the means of the two treatments, it was found that the difference was significant at the .05 level. The fact that the mean number of vocations mentioned by the total group was only 2.81 suggested that the students felt rather limited in their abilities despite the numerous jobs mentioned in the test reports. It would appear that test interpretation has only limited effects on the student's vocational plans.

Summary Counseling - Study

From the above findings, it would appear that the two tests used in this study did not differ significantly in the overall effects they had on the attitudes, decisions, and behavior of the boys counseled. In those instances where the GATB did differ significantly, there was no substantive evidence that the differences were translated into action on the part of the student. Close analysis of the answers given to the RVPS, which was the best measure of the students involvement in the choice-making process, indicates quite clearly that most vocational-technical boys do not involve themselves in the choice-making process. They perceive problems, they give some thought to the problems, but they seldom go after the answers to their problems. They seem to be concerned about their future vocational plans, but they are either unwilling or unable to systematically analyze their problem and act in light of all available information.

Based on the picture presented in this study, it appears that the student cannot be left to challenge these problems on his own. He must be directed. Much of the direction must be given prior to the ninth grade, and it should be systematic and comprehensive. If left to his own devices, the decisions reached will seldom be based on more than interest, hunches and trial and error. Unfortunately, the present curricular offerings in the vocational-technical school do not make adequate provision for those who embark on the trial and error path.

Undoubtedly, test interpretation must continue to be a part of the assistance provided to these students, but there is a need to study different methods of test interpretation. If tests are to play a more meaningful role, new and more effective methods of test interpretation must be found. In addition, the benefits derived from test interpretation must be coupled with other curricular changes which will afford the student more vocationally-related exploratory experiences, first-hand experiences being preferred. There is also a need to do more than merely tell a student what jobs he is qualified to pursue. A number of specific recommendations concerning this problem will be presented in the last section of this report.

In conclusion, it cannot be said, based on the information derived from this study, that one test provides greater assistance than another for those ninth grade boys who expressed an interest in vocational-technical education. Additional studies of this nature should be conducted which seek to compare, not only the tests used, but the methods of interpretation as well.

CURRICULUM STUDY

Based largely on the related research and preliminary studies conducted during the 1966-67 school year and a letter of inquiry which was sent to a number of state directors of vocational-technical education, leading educators, and research workers in the fields of vocational-technical education, industrial arts education, and vocational guidance, an investigation of operating and experimental curricular programs was pursued throughout the 1968-69 school year. The basic underlying criterion used in curriculum evaluation was that the program recognize the vocational readiness level of adolescent boys and provide opportunities for growth in this area of development.

From the outset, it became evident that others in the field were beginning to recognize the existing problem and were seeking alternate curricular approaches which would provide more meaningful experiences. Many of the programs investigated cited the work of Super (1960) as justification for change, but only a few presented evidence from studies of vocational-technical students.

A number of programs were investigated which sought to provide improved vocational guidance services at the junior high school level. From the vocational guidance programs studied, a number were singled out for detailed evaluation. The North Carolina, Introduction to Vocations Program (1965) and the Quincy, Massachusetts (1966), junior high school vocational guidance programs came closest to meeting the needs of the students entering vocational-technical education. The Quincy program was directed toward promoting realistic occupational choices and appropriate high school vocational-technical courses. The program has been in operation for one year and is currently being evaluated by the staff of the American Institutes for Research. The quality of planning which has gone into this program makes it worthy of serious consideration by member school districts. The North Carolina program which is designed to "help students develop planfulness" is also exemplary and is based on an awareness of the student's limited vocational maturity. The Quincy program recognizes the importance of extended vocational guidance by providing a sequential program beginning in grade seven while the North Carolina program concentrates on grade nine. Based on the local study findings, a two or three year program of intensive vocational guidance is to be preferred. Ideally, vocational guidance begins in the primary grades and continues throughout the school years.

Innovative junior high school industrial arts programs, some of which are radical departures from traditional industrial arts programs were also studied. Several of the programs such as the American Industries Program (1967) of Stout State and the University of Maryland industrial arts program deviate considerably from the more traditional approaches followed in our area. The American Industries Program is primarily concerned with industrial processes rather than the development of skills and the use of materials. Although the University of Maryland program does not break as sharply with tradition, it too places greater emphasis on industrial processes. A revised industrial arts program in the sending junior high schools should incorporate both the new and the traditional if it is to serve the students who plan to enter vocational-technical education. Since the tentative plans at the high school level call for the adoption of a modified cluster approach, the junior high school industrial arts program should provide the exploratory opportunities which will enable students to investigate a cross-section of vocational families prior to selecting a specific cluster for grade ten. The industrial arts program at the junior high school level should help to provide vocational information and exploratory opportunities which will enable the students to better understand both the world of work and their own abilities.

The search for a high school level vocational-technical program was predicated on the assumption that students are not ready to choose one specific area of training from the 20 to 30 programs which will be offered. The investigation of high school level programs also assumed that broad exploratory opportunities and improved vocational guidance would be available at the junior high school level. If vocational guidance services and industrial arts programs are left unchanged, the proposed high school level program will not achieve its' desired goals.

Among the vocational-technical education programs investigated which did recognize the inability of most students to select a specific program in the first year were the following:

(1) North Carolina's (1966) state-wide program which provides high school students with a one-year introduction to and exploration of occupations. The North Carolina program uses ten families based on industrial classifications (ex) automotive industry, construction industry, and furniture industry.

(2) Detroit's Galaxy Plan (1966) which consists of subject area galaxies, comprising a group of related occupational classifications. This program, much like the cluster approach to be described next, assumes the transferability of skills and knowledge in the world of work. Within each galaxy, four groups or levels have been

established (a) professional, (b) technical, (c) trade preparatory, and (d) occupational preparatory. (3) The University of Maryland's Cluster Approach (1966) which is geared to prepare a student to enter into a family of occupations rather than one specific occupation. The Cluster Concept was developed in order to: (a) provide students with a greater degree of geographical mobility, (b) provide students with mobility for jobs within an industry or occupation, (c) develop students who will be able to adopt to technological change and (d) provide students with greater flexibility in occupational choice patterns. As proposed by Maryland, the program would be three years in length and specialization would wait until post-high school years.

While each of the high school level programs offers certain advantages, there are also a number of disadvantages associated with each. From the many programs reviewed, it was decided that the Cluster Approach with certain modifications would best meet the needs of our students. During the coming year, staff members will study in detail the Maryland program and make modifications to fit the local needs.

VI. RECOMMENDATIONS

As a result of the findings contained in this report, it is felt that a number of broad recommendations can be made concerning curricular revisions which will significantly improve the vocational-technical offerings. Although these recommendations might conceivably be made for all students, our interest in this report was the boy who attends the vocational-technical school.

(1) A systematic and continuing program of vocational guidance should be implemented. Vocational guidance should begin in the early elementary grades and be considered the responsibility of all staff members, not just counselors. Particular emphasis must be given to vocational guidance for students who plan to enter vocational-technical school while the student is in grade eight and nine. The vocational-technical school staff should be available to assist sending schools in this program whenever their services are warranted. Vocational guidance is not a "one-shot affair" which precedes course selection by several weeks or months; it must be planned, continuous, and systematic. Adequate time, materials, and staff must be made available for this vital service to students.

More specifically, the junior high school counselors should consider the adoption of the General Aptitude Test Battery (GATB) for use with ninth grade boys who plan to enter vocational-technical education. The study contained in this report concerning the "values" derived from the use of this test showed only limited values over those resulting from the use of another aptitude test; however, it is still felt that if the test results were the part of a more comprehensive vocational guidance program the differences between the tests would be more significant. The use of alternate interpretative methods may also increase the "values" which will be derived from the use of GATB. This possibility should be subjected to a controlled study.

The vocational-technical school must also provide more meaningful vocational guidance services. Vocational-technical school teachers and counselors must accept the fact that entry into the vocational-technical school does not mean that vocational guidance is no longer necessary. Student progress and plans should be evaluated constantly in order to better assist each student to plan for the future. The first year student who is enrolled in a cluster will need considerable guidance from both the teacher and the counselor if he is to select a meaningful program for his second and third year. Once again adequate staff, materials and time must be made available if this program is to function properly. Improved vocational guidance at all levels is needed if improved vocational-technical education is our goal.

(2) There is a pressing need to evaluate the present junior high school industrial arts programs in order to determine whether they are serving the needs of students who enter vocational-technical education. In a number of cases existing programs are sharply curtailed because of limited space, equipment, staff and time. A number of junior high school industrial arts programs are not able to expand their offerings in light of these limitations. If these programs are to meet the needs of the students, change is necessary. Industrial arts should not be treated as a luxury or a necessary "state-mandated evil." An imaginative and comprehensive junior high school industrial arts program is a necessity, if the proposed senior high school vocational-technical curricular changes are implemented.

The junior high school industrial arts program must provide the broad exploratory opportunities which will be prerequisite for the narrowed exploratory first year vocational-technical programs and the specific skill preparation which follows. The junior high school industrial arts program must also share the responsibility for the vocational guidance of the students served. The students used in the local study were quite emphatic concerning the limited role played by industrial arts in providing "job information". Innovative programs should be studied by industrial arts personnel and appropriate recommendations for curricular change should be made. Improved and expanded junior high school industrial arts programs are needed if improved vocational-technical education is our goal.

(3) The senior high school vocational-technical school curriculum should be revised in light of the study's findings. This report recommends the adoption of a modified cluster or family approach. The major modification of the University of Maryland program would be to limit the cluster phase of the program to first year students. (If it is found in time that a second and/or third year of a cluster is desirable, the school administration should revise the program accordingly.) The adoption of a one-year cluster program, which will be exploratory in nature, is predicted on the assumption that the junior high school industrial arts and vocational guidance programs will provide the broad exploratory information and experiences necessary for the intelligent selection of a cluster. As proposed, most clusters will consist of three or 3 four related vocational programs. (ex) The building cluster might consist of twelve weeks in carpentry, twelve weeks in masonry and twelve weeks in electrical wiring.

The adoption of a cluster approach will be a break with tradition; and, as such, it will impose many challenges on all who are associated with the school. For some, the break with tradition will be somewhat difficult and to some it will be considered unnecessary. For some, the quantitative analyses of data contained in this report will not be considered adequate justification for change. Unfortunately, some of the most compelling evidence to support change could not be quantified and put into summary tables. Discussions with students in grades eight to twelve concerning their educational and vocational plans, the reasons for these plans or the lack of plans had as much impact on the recommendations contained in this report as the statistical analyses of _yes_ and _no_ answers to questionnaire items used in this study.

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APPENDIX A

VOCATIONAL DEVELOPMENT INVENTORY

1. Once you choose a job, you can't choose another one.

2. In order to choose a job, you need to know what kind of person you are.

3. I plan to follow the line of work my parents suggest.

4. I guess everybody has to go to work sooner or later, but I don't look forward to it.

5. A person can do any kind of work he wants as long as he tries hard.

6. I'm not going to worry about choosing an occupation until I'm out of school.

7. Your job is important because it determines how much you can earn.

8. Work is worthwhile mainly because it lets you buy the things you want.

9. The greatest appeal of a job to me is the opportunity it provides for getting ahead.

10. I often daydream about what I want to be, but I really haven't chosen a line of work yet.

11. Knowing what you are good at is more important than knowing what you like in choosing an occupation.

12. Your parents probably know better than anybody which occupation you should enter.

13. If I can just help others in my work, I'll be happy.

14. Work is dull and unpleasant.

15. Everyone seems to tell me something different, until now I don't which kind of work to choose.

16. I don't know how to go about getting into the kind of work I want to do.

17. Why try to decide upon a job when the future is so uncertain.

18. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.

19. I don't know what courses I should take in school.

20. It's probably just as easy to be successful in one occupation as it is in another.

21. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.

22. There are so many things to consider in choosing an occupation, it is hard to make a decision.

23. I seldom think about the job I want to enter.

24. It doesn't matter which job you choose as long as it pays well.

25. You can't go very far wrong by following your parents' advice about which job to choose.

26. Working is much like going to school.

27. I am having difficulty in preparing myself for the work I want to do.

28. I know very little about the requirements of jobs.

29. The job I choose has to give me plenty of freedom to do what I want.

30. The best thing to do is to try out several jobs, and then choose the one you like best.

31. There is only one occupation for each person.

32. Whether you are interested in a particular kind of work is not as important as whether you can do it.

33. I can't understand how some people can be so set about what they want to do.

34. As long as I can remember I've known what kind of work I want to do.

35. I want to really accomplish something in my work--to make a great discovery or earn lots of money or help a great number of people.

36. You get into an occupation mostly by chance.

37. It's who you know, not what you know, that's important in a job.

38. When it comes to choosing a job, I'll make up my own mind.

39. Choose an occupation which gives you a chance to help others.

40. When I am trying to study, I often find myself daydreaming about what it will be like when I start working.

41. I have little or no idea of what working will be like.

42. Choose an occupation, then plan how to enter it.

43. I really can't find any work that has much appeal to me.

44. Choose a job in which you can someday become famous.

45. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.

46. Choose a job which allows you to do what you believe in.

47. The most important part of work is the pleasure which comes from doing it.

48. I keep changing my occupational choice.

49. As far as choosing an occupation is concerned, something will come along sooner or later.

50. Why worry about choosing a job when you don't have anything to say about it anyway.

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APPENDIX B

READINESS FOR VOCATIONAL PLANNING SCALE

developed by Warren D. Gribbons and Paul R. Lohnes

1. What curricula are there that you can take?

2. What curriculum do you plan on choosing for next year?

3. What made you decide to take _________ curriculum?

4 & 5. Why did you decide not to choose _______ curriculum?

6. Is there any advantage to taking the college curriculum?

7. Is there any advantage to taking the other curricula?

8. What subjects must everyone who chooses your curriculum take?

9. What made you decide to take general math (or algebra)?

10. Is there any advantage to taking algebra?

11. What facts should you know about yourself before you choose a curriculum?

12. How can you predict your chances of success in different courses for next year?

13. Do you expect to finish high school?

13a. How much school do you plan after high school?

14. What occupations have you thought about as your possible life work?

15. Why would you like to become a (first choice)?

16. Why would you like to become a (second choice)?

17. Why would you like to become a (third choice)?

18. What facts should you know about yourself before choosing an occupation?

19. How much education is required to be a (first choice)?

20. What does a (first choice) do at work?

21. Is your choice of high school subjects suitable for your (first choice)?

22. Is your choice of high school subjects suitable for any other occupation in case you can't be a (first choice)?

23. What connection do you see between the subjects you'll be taking next year and the work you want to do later on?

24. Tell me something about your scholastic abilities. That is, tell me something about your strong points and weak points in school.

25. Which abilities do you have that will help you to be successful in your program for next year?

26. Which ability do you lack that you feel would help you to be successful in your high school program?

27. Which abilities do you have that will help you in the work you are planning?

28. Which ability do you lack that you feel would help you to be successful as a (first choice)?

29. Would you check your position on this scale for verbal ability.

30. Would you check your position on this scale for quantitative ability.

31. Would you check your position on this scale for general scholastic ability.

32. When I asked you to check your position for verbal ability you marked ________. What did you base your position on?

33. When I asked you to check your position for quantitative ability you marked ________. What did you base your position on?

34. When I asked you to check your position for general scholastic ability you marked ________. What did you base your position on?

35. Tell me something about your interests. That is, the kinds of activities you like or dislike.

36. What particular interests and activities would your occupation satisfy?

37. Tell me some other interests a (first choice)has.

38. What interests do you have that will not be satisfied by your occupation as a _______ (first choice)?

39. As you know, things that are important or unimportant to us are called values. Tell me some of your values.

40. What values of yours would working as a ________ satisfy?

41. What values of yours would not be satisfied in your occupation as a ________ (first choice)?

42. Which of your values will conflict with one another in your choice of an occupation?

43. We're interested in how students make up their minds about courses and would like you to share some of the things you've gone through. Can you tell me how you decided on _________ curriculum?

44. Where did you get your information?

45. How do your parents feel about your occupational choice?

46. Suppose your parents didn't agree with your plans. What would you do?

47. Who do you feel should be responsible for your occupational choice?

The RVPS was used with the permission of the authors.

APPENDIX C

HIGH SCHOOL GUIDANCE QUESTIONNAIRE

Name______________________________ Course________________________
(Com - Voc - Home Ec. - Ind Arts - CP)

Grade ____________________

Answer the four questions below:

1. Listed below are a number of factors which are usually considered in choosing an occupation. Which factors do you feel are most important and least important to you as you choose your future occupation? Place a number "1" in front of the factor which you feel is most important, a number "2" in front of your second choice, a number "3" in front of your third choice, etc. Follow this procedure for the complete list of ten. The item marked "10" will be the factor which you feel is the least important of those listed.

   ____ A. A job where you could be a leader.
   ____ B. A very interesting job.
   ____ C. A job where you would be looked upon very highly by your fellow man.
   ____ D. A job where you could be boss.
   ____ E. A job which you could be absolutely sure of keeping.
   ____ F. A job where you could express your feelings, ideas, talent, or skill.
   ____ G. A very highly paid job.
   ____ H. A job where you could make a name for yourself or become famous.
   ____ I. A job where you could help other people.
   ____ J. A job where you could work more or less on your own.

2. What is your occupational goal? (Do not list an armed service unless you plan to make it a career. If you plan to attend college or any post-high school educational institution, list the occupation you expect to have after completing all formal education.) Be as specific as possible. Examples: Practical Nurse, Secretary, Electrician, Elementary Teacher, Machinist, Waitress, Electrical Engineer, Truck Driver, Lawyer, Sales Clerk, etc. List undecided only if you have no idea at all concerning your future occupation.

Your choice of occupation: ______________________________

3. How strongly do you feel about the occupation you have listed under Number 2? (Place an X in front of the appropriate item.)

   ____ A. I am certain this is the occupation I will follow.
   ____ B. I have some reservations, but I am fairly certain I will stay with this choice.
   ____ C. I have many reservations and probably will change my goal in time.
   ____ D. I am very uncertain. I have no idea as to the occupation I will follow.

4. How well do you know your abilities and interests in order to select an occupation? (Check one item)

   ____ Very Well ____ Somewhat ____ Very Little

APPENDIX D

GUIDANCE QUESTIONNAIRE

1. Name ______________________________

2. Home School ________________________

3. Grade Level ________________________

4. Present Shop ________________________

5. Father's Occupation __________________

6. Was this your 1st, 2nd, or 3rd choice shop? (Place 1, 2, or 3 on answer sheet.)

7. What is the highest level of education or training you expect to achieve: (Place the appropriate letter on the answer sheet.)

    a. Four-year college degree.
    b. Two-year community college, if and when available.
    c. Vocational or technical school, other than community college beyond the high school level.
    d. Business school - post high school.
    e. Formal apprenticeship program in any trade.
    f. Graduate from high school.
    g. Leave high school before graduation.

8. If you were now in 9th grade, what program would you want for high school? Place the letter A or B on the answer sheet.

    a. Same as I now have.
    b. Different from my current program.

9. For those who answered B under 8, what would you take? Place the appropriate letter on answer sheet. Do not answer if you answered A for #8.

    a. College preparatory.
    b. Business education.
    c. Industrial arts.
    d. Another vocational-technical program.

    For those who answered #9 - D. Which shop would you prefer?

(Think back to ninth grade when you were asked to choose a three-year program and answer the following questions:)

10. Who had the most influence on your choice of Vocational-Technical Program? (Place the appropriate letter on the answer sheet.)

    a. Father
    b. Mother
    c. Brother or sister
    d. Other relative
    e. Junior high school counselor
    f. Industrial Arts teacher
    g. Other junior high school teacher
    h. Close friend in 9th grade with me
    i. Close friend already in high school
    j. Neighbor or family friend
    k. No major help from anyone, it was my choice
    l. School placed me, it was not my first choice
    m. Other than those listed above. If you answer (m) who (not the name) helped you.

11. Why did you choose the program you're now in? (Place the appropriate letter on the answer sheet.)

    a. The school placed me in this shop, it was not my choice.
    b. Same as my father's training and after talking to him I felt I would like it.
    c. My family urged me to take this but it is not my father's occupation.
    d. My family, relative, or family friend has a business where my school training guarantees me a job.
    e. On my own, I had looked into this field and decided I would enjoy it as a future vocation.
    f. The junior high school counselor discussed my plans with me and suggested this field.
    g. Based on my industrial arts program in junior high school, I found I enjoyed this type of work.
    h. I didn't have any idea what I wanted and decided the work in this course would not require as much work as other high school programs.
    i. My friend or friends in 9th grade planned to take this program.
    j. My friend or friends in high school were already in this program.
    k. Other (If you answer K, describe briefly your reason.)

(One of our main purposes in this questionnaire is to find ways to improve the course selection procedure for future students.)

12. Did you find that your junior high school counselor gave you the information and help you needed to make a good choice of programs? Yes or No

13. Do you feel that you would have been able to make a better choice, if as a sophomore you could have spent part of your shop period in several (2-4) different shops before making a final choice of one shop? Yes or No

14. Did you seek printed information available in junior high school to help learn about the various vocational (job) areas from which you were asked to choose? A great deal; Some; not at all

15. Did your industrial arts teacher(s) provide information about vocational (job) possibilities? A great deal; Some; None

16. Did the orientation program(s) conducted immediately before you were asked to choose help you in making your final choice? A great deal; Some; Not at all

17. How would you improve the course selection procedure?

(As you look ahead, beyond your service commitment, to your future, answer the following questions:)

18. Do you plan to work in a job for which your present shop training will prepare you? Yes; No; Undecided

19. What job do you expect to hold as your first full-time job? (Job Title)

20. What yearly income do you expect from your first full-time job? (Place the appropriate letter on the answer sheet.)

a. Less than $3500
b. $3500 - $4500
c. $4600 - $5500
d. $5600 - $6500
e. $6600 - $7500
f. $7600 - $8500
g. $8600 or above

21. Do you expect to return, evenings or part time, to the vocational-technical school or community college to improve your job skills? Yes or No

22. Do you anticipate a possible need to completely retrain yourself for a different type of job during your adult working years? Yes or No

23. What training would you prefer, if different from your present program? Include the program even though it is not now offered.

24. Do you feel you still have questions about your future vocation? Yes or No

25. Do you feel you had enough background information to make a good choice of an occupation, when you were in grade nine? Yes or No

26. Who would you most likely go to for help in answering questions about your future vocation? (If you feel more than one person would be helpful, list them in order of preference. Do not list more than two.)

    a. Present shop teacher
    b. Another shop teacher, other than my present one
    c. Home high school counselor
    d. Vocational school counselor
    e. Parent
    f. Friend in school
    g. Friend who is now working
    h. Pennsylvania State Employment Office
    i. Relative other than parent, brother or sister
    j. Brother or sister
    k. I doubt if anyone could answer my questions.

27. What vocational career do your parents want you to follow? (If they haven't expressed a preference write NO PREFERENCE on the answer sheet.)

28. What job would you want to be doing when you are around 30 years old? (If you have no strong preference write UNDECIDED on the answer sheet.)

29. Do you plan to quit school before graduation? Yes or No

END

DEPT. OF HEALTH
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